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Provincial Livestock Policy Framework

July, 2011

This publication was produced for review by the USAID. It was prepared by Ian H. Auld for an assignment commissioned by Chemonics International under the USAID Firms Project.



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Data Page

Contract Number:	GBTI II Task Order No. EEM-4-07-07-00008-00
Contractor Name:	Chemonics International, Inc.
Name of the Component:	Business Enabling Environment (BEE)
USAID Technical Office:	Office of Economic Growth and Agriculture; USAID Pakistan
Date of Report:	July 27th, 2011
Document Title:	Provincial Livestock Policy Framework
Author's Name:	Ian H. Auldism
SOW Title and Work Plan & Action ID:	USAID Firms Project Provincial Livestock Policy Framework, Work Plan Level 33000 Action #3282, SOW #1319
Project Area:	Balochistan, Punjab and Sindh, Pakistan
Key Words:	Animal welfare, breed improvement, dairy, disease surveillance, extension, livestock, markets, meat processing, quality assurance, policy,

Abstract

Current livestock policies in Punjab, Sindh and Balochistan are analyzed, and impacts and distortions identified. Based on survey data and stakeholder analysis specific policy impacts are assessed, and effects on livestock markets and meat processing identified. A policy framework is presented using principles drawn from international best practice, which provides a basis for public sector institutional reform, and increased participation and efficiency of the private sector.

Acronyms

ABBA	Agriculture in the Balochistan Border Areas Project
ACIAR	Australian Centre for International Agricultural Research
ADB	Asian Development Bank
AI	Artificial insemination
AMPC	Australian Meat Processor Corporation
AQIS	Australian Quarantine
CCPP	Contagious Caprine Pleuropneumonia
EU	European Union
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GDP	Gross domestic product
Halal	Islamic Law permissible food designation
L&D Dept	Livestock and Dairy Development Department
Mandi	Marketplace
MLA	Meat and Livestock Australia
MTDF	Mid Term Development Framework
NGO	Non Government Organization
PPR	Peste des Petits Ruminants
SOW	Scope of Work
UNDP	United Nations Development Program
USAID	United States Agency for International Development
UVAS	University of Veterinary and Animal Sciences

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Executive Summary

The livestock sector is an important element of the Pakistan economy, providing more than 50% of agricultural output from estimated total assets of US \$19 billion, and involving more than 75% of the population. Industry potential however is constrained by distortions and imbalances in the policy and regulatory framework which have created inefficiencies in the planning, management and development of livestock infrastructure, facilities and services.

While under-capacity affects key areas of public sector function, the private sector is also affected by restrictions from entering areas of business dominated by government such as livestock market management, and slaughter and processing for domestic consumption, limiting incentive to develop markets, create demand, and increase economic activity. Although there is potential for increased growth, demonstrated by an approximate doubling of dairy and meat price indices over the last ten years, the current policy environment has helped to reduce economic performance to a level which is unacceptable under the current conditions of demand for meat and dairy products. Dairy productivity is only 22% of world benchmarks, as 30-40% of animals are estimated to be underfed, and 90% unprotected from disease. This situation is associated with an extension service which fails to meet the needs of herd owners, who produce for markets where demand is limited by current policies and lack of quality assurance.

International experience in Chinese and Australian policy setting was adapted to establish a series of principles on which to base a new policy framework. These principles are listed as follows:

- Elimination of market distortions through restriction on competition
- Creation of a demand-driven approach to markets
- Recognition that there is a cost for goods and services
- Elimination of resource allocation distortions through public ownership of business entities
- Representation for stakeholders in industry decisions
- Industry self-regulation
- Independence of regulatory bodies
- Sustainable use of resources
- Independent policy for social and economic disadvantage
- Recognition of cultural attitudes

Using these principles the objectives of a proposed policy framework for each area of the livestock sector are set out below:

1. Disease surveillance and control:

- Government capacity to conduct surveillance programs capable of detecting new exotic diseases, providing evidence of freedom from diseases, describing distribution and level of occurrence of endemic diseases, and assessing progress in control and eradication.
- Government capacity to provide the technical and financial analysis (feasibilities, risk levels, cost-benefits) to enable decisions and strategies relating to livestock disease.
- Regulation to provide effective disease monitoring and reporting from private veterinary clinics, livestock markets, and slaughter/processing facilities.
- Regulation to provide for the establishment of disease control and eradication areas for particular transmissible diseases.

2. Disease Treatment:

- Disease treatment to be a private sector activity undertaken by private sector veterinarians or others (paravets, community livestock health workers, livestock owners), using registered and labelled medicines.
- Only veterinary medicines to be available to the private sector which are accredited and labelled for use under specific conditions

3. Vaccine production:

- Vaccine production or importation to be limited to the private sector
- All vaccines to be registered for use, or approved for importation.

4. Feed production and monitoring:

- Quality assurance through the food chain by developing traceability of non-manufactured feeds purchased by livestock producers through a vendor declaration procedure.
- Development of business practices supporting trade in non-manufactured feeds/forage as a commodity, based on availability of objective quality analysis, underpinned by a quality assurance process.

5 Extension services:

- Government institutions provided with capacity to deliver programs for the public good including technology transfer, education, attitude change, human resource development, and dissemination and collection of information.
- Development of mechanisms to enable contributions to funding of extension from industry, associated with input regarding extension needs.
- Private sector entities including consultants/agribusiness to be registered and facilitated to provide extension services where appropriate
- Government institutions provided with technical capacity to manage private sector extension providers.

- Social development and poverty alleviation activities to be defined, and managed independently of L&DD Departments

6. Breed improvement:

- Maintenance and preservation of herds and flocks of indigenous breeds to ensure supply of indigenous semen
- Facilitation and regulation of private semen production and insemination, to ensure standards of business practice, and fair treatment for consumers in regard to standards of semen quality and insemination, including disease transmission.
- Regulation of importation of semen aimed at limiting the risk of disease transmission.
- Facilitation and regulation of a viable breeding industry which meets the needs of expanding milk and meat production industries, with no restriction in private investment and trading in livestock genetics.

7. Research and development:

- Prioritization of research including formal engagement with each end-user industry
- Funding contributions by end-user industries
- Accountability by researchers to funding bodies
- Monitoring, evaluation, and impact assessment by end-users, and measurement of adoption rates of research results.

8. Livestock Marketing:

- Livestock markets to be conducted by the private sector, with commercial entities competing to offer market services.
- Market management entities to be regulated to ensure compliance with provincial conditions including standards of market conduct, collection of data and collection of levies to fund market development.

9. Meat processing and marketing:

- Private sector freedom to undertake slaughter of livestock and processing activities to produce meat products for domestic or export use.
- Business entities to be licensed to undertake domestic processing, with accreditation based on issues such as standards of infrastructure, standards of operational hygiene, standards of environmental care etc.
- Removal of meat price controls in domestic markets

10. Commercial livestock production:

- No government involvement in commercial livestock production or ownership of assets for that purpose.
- Transparent and equitable livestock industry taxation policies including income taxation, cost recovery for services, recognition of cost for grazing public rangeland.

11. Animal welfare:

- A code of practice for animal welfare in markets, slaughter, transport, research, and commercial production including nutrition and management, which reflects good commercial livestock practice as well as current attitudes of society.

12. Environment:

- Regulation of negative effects on the environment as a result of livestock management, transport or processing, or disposal of waste associated with these activities, giving particular attention to feedlots and intensive livestock industries.

13. Rangeland management

- Measurement of impacts of livestock on public rangelands currently managed by Provincial Forestry Departments.

Regulation of livestock management practices which have negative effects on soil, water or vegetation resources and threatened ecosystems on publicly owned and administered rangeland.

1. Introduction

Livestock has an important role in the economy and the culture of Pakistan, and the sector's total assets are estimated to be worth more than US \$19 billion. Contributing approximately 11% to the GDP¹ and more than 50% of value-added in agriculture, livestock products are assuming an increasing share of agricultural output, rising from 25% in 1996 to 50% in 2006. In a country of scarce resources the estimated annual growth in the livestock sector of 3.7%² comes partly at the expense of crop production, and partly due to the increasing value of livestock products.

These products include milk which is 75% of the total value from the sector, mutton, beef, hides and skins, poultry, wool/hair and farmyard manure. They are derived from ruminants including cattle, buffalo, sheep and goats, and from production systems ranging from arid rangeland to high input irrigation. Approximately 75% of the population has some involvement with the livestock sector, and livestock are the main source of income for the rural poor and landless.

At the present time continued growth of the sector is being influenced by high world prices for livestock products including meat, milk and wool. The FAO Meat Price Index shows prices have almost doubled over the past ten years, with a rise of 17% in the past 12 months. The Dairy Price Index has more than doubled during the decade, and world coarse wool prices have quadrupled over that period. At the same time production is less dependent on rangeland grazing, and more on semi-industrialized integrated crop-livestock systems using feeds as commodity inputs. In this context there is a currently a need to identify areas where the sector can take advantage of existing demand, function more efficiently, generate more economic activity, and use resources more rationally. A major constraint is a lack of a modern policy framework which can redefine the role of the stakeholders in the sector including government. To address this gap a policy framework is required which adapts international best-practice principles to the Pakistan situation.

¹ ADB Report: National Agriculture Sector Strategy 2008

² Govt of Pakistan Planning Commission Report: Framework for Economic Growth 2011

2. Methodology

The governments of Punjab, Sindh and Baluchistan requested that the FIRMS Project of USAID based in Lahore address the issue of policy development, and present a policy framework based on international best-practice. The FIRMS Project response involved assembly of a team which included an Australian livestock policy specialist with experience in a number of countries as well as Pakistan, and a perspective on international best-practice. Specific tasks in the consultant's Scope of Work are listed as an appendix:³

In carrying out the above tasks, an approach was needed which provided an understanding of industry issues. The majority of the sector assets are in the form of livestock, and most livestock experience changes in ownership during their lives, and are processed into meat and other products. As a consequence the trading of live animals is a significant business activity in Pakistan. It is also provides a major avenue for producers to extract income from their livestock enterprise. To investigate policy constraints affecting livestock marketing a Rapid Market Survey was carried out, with information collected relating to 144 markets in Punjab and 90 markets in Sindh. Detailed studies were conducted on a sample of twelve important markets.

Field visits to Sindh and Balochistan were also undertaken to interview a range of stakeholders. An understanding of the roles and responsibilities of sector participants was achieved, including those of provincial government leaders from Punjab, Sindh and Balochistan. Roles were identified of key private sector managers including vertically-integrated meat and milk enterprises, representatives from livestock producer organizations, food quality certifiers, managers of projects supporting socially and economically disadvantaged producers, small and medium enterprise specialists, and technical specialists.⁴ Data from these sources was complemented by specific L&DD Department policy and strategy statements, provincial economic reviews, and specialist evaluations of relevant issues.

³ Appendix 1 FIRMS Project Consultancy Scope of Work

⁴ Appendix 2 Record of Meetings and Interviews

3. The Existing Policy Situation in Punjab

3.1 Policy context

The dominance of Punjab in the Pakistan livestock sector can be seen from the following statistical picture. The province has 49% of Pakistan's cattle, 65% of the buffaloes, 24% of the sheep, and 37% of the goats (2006 Census). It also dominates the other provinces in value of product, producing 62% of milk, 43% of beef and 32% of mutton. At the same time livestock productivity and standards of preventive health are far below world benchmarks. In the dairy industry wastage is estimated at 20% due to poor infrastructure facilities, and only 4% of milk is currently processed.⁵ Punjab has a vibrant private sector, and much to gain from policy reform which increases efficiencies in business processes, allows the government to concentrate on regulation and facilitation, and benefits the stakeholders involved with the livestock industry. As the Punjab Government department which has been allocated a number of livestock-related functions, the Livestock and Dairy Development Department is the focal institution for livestock sector policy in Punjab.⁶

3.2 Provincial Policy Documents

The Government of Punjab Planning and Development Department is responsible for an annual Mid Term Development Framework, which is a multi-year rolling development budget. The primary role of the MTDf is to "translate the Government's Development Program into a series of broadly-defined policy interventions".⁷ Associated with each MTDf is a livestock Vision Statement, and a list of Policy items which are a guide for the Government in its allocation of resources, reflecting Government social and economic priorities.

Since the 2009 MTDf the Vision and Policy statements have been unchanged. Prior to this the listed Policy changed in content detail each year, and also reduced from twelve items in the 2006-9 MTDf to seven items in the most recent Framework. Vision concepts evolved over this period to become the statement presented in the 2011-2014 MTDf:

"To support livestock development in a policy environment that enables farmers to realize the dividends of livestock farming by smartly deploying public investments and inducing private capital and initiatives in the sector for poverty alleviation, food security and generation of exportable surpluses".

This statement does not meet the task of articulating the policy of the Department. In describing an ideal, the Vision fails to provide any details of where that policy environment consists of, or the governing principles and derived rules under which that policy environment will create dividends for livestock farmers, and economic growth for Punjab. It also gives no hint of the regulation necessary to attract private capital to target poverty or food security. It is very much a statement of aspirations, rather than a description of what the Department is legally required to make happen. A key omission relates to how the public investments will be used and the legal

⁵ Pakistan: Govt of Pakistan Planning Commission Report: Framework for Economic Growth 2011

⁶ Schedule II, Distribution of Business among Departments(L&DD Dept) – Punjab Rules of Business 1974

⁷ MTDf 2007-10 Executive Summary

framework necessary to ensure that public resources are concentrated on protecting public interests transparently and accountably.

The document also lists the policy objectives which would achieve this ideal:

- Food security through increased milk and meat production
- Poverty alleviation by supporting livestock subsistence farmers and women
- Productivity enhancement through improved genetics, balanced nutrition and improved husbandry
- Better functioning of markets and regulatory regime
- Private enterprise development to optimally realize potential of livestock assets
- Applied research and technology
- Provision of quality products (dairy and meat) for domestic consumers and export markets.

These seven statements are titled “policy”, but they fail to articulate policy for a number of reasons. They provide no definition of the role of the Government or the L&DD Department in particular activities. The responsibility of the Government is not defined in regard to poverty alleviation, productivity enhancement, or market function. The task is not identified in relation to provision of product quality. The limits of the public sector are not delineated with respect to private enterprise development or genetic improvement.

Secondly, these statements of policy also ignore any requirement for public sector accountability, by not including any measure of progress. There is no reference to a baseline situation, or to any year which could be used as a reference point by which to gauge achievement. Subjective terminology such as “better functioning” and “quality products” emphasise this deficiency.

Thirdly, policies set out in the series of Mid Term Development Framework documents vary from year to year. A number of policy items have been discontinued, for example preservation of indigenous breeds of cattle, progeny testing to measure genetic progress, research oriented towards farmers’ needs, and assistance for farmers forming cooperatives. Specific gender empowerment policy has also been discarded, but market function and regulation introduced in 2009. The issue of poverty alleviation, although a regular policy theme, has not been treated clearly and consistently.

These statements of livestock policy drawn from the Medium Term Development Framework documents between 2006 and 2011 lack consistency, and are unable to provide a clear understanding of the current policy environment.

The Government’s choice of roles and regulatory interest in the Livestock sector are contained in the Punjab Government Rules of Business for the L&DD Department under the heading of departmental functions. While these functions do not indicate interventional depth or intensity in a particular area they do define the nature of government intervention or government’s perceived role in a particular area of activity. The functions also provide administrative and legal cover to existing and proposed departmental activities.

Table 1 Department Functions, L & DD Department

Existing since 1974	Revised in 2010
<p>1. Matters relating to:</p> <ul style="list-style-type: none"> a. Development of livestock farms and semen production b. Development of poultry farms c. Policy matter regarding prevention of cruelty to animals d. Veterinary training <p>2. Diagnosis of animal diseases</p> <p>3. Purchase of stores and capital goods for department</p> <p>4. Production of biologics</p> <p>5. Research in various disciplines of livestock production and health.</p> <p>6. Service matter except those entrusted to Service and General Administration Department</p>	<p>1. Matters relating to:</p> <ul style="list-style-type: none"> a. Development of livestock farms and semen production b. Development of poultry farms c. Policy matter regarding prevention of cruelty to animals d. Veterinary education, training, and research including University of Veterinary and Animal Sciences, Lahore and other veterinary Faculties / Colleges of the Province. <p>2. Breed improvement / genetic up-gradation of animals</p> <p>3. Communication and extension</p> <p>4. Diagnosis of animal diseases</p> <p>5. Disease surveillance and control.</p> <p>6. Improvements of cattle markets</p> <p>7. Milk and meat safety measures /inspection</p> <p>8. Modernisation of public sector slaughterhouses</p> <p>9. Policy and regulatory framework</p> <p>10. Purchase of store and capital goods for department</p> <p>11. Production of biologics</p> <p>12. Research in various disciplines of livestock production and health</p> <p>13. Service matter except those entrusted to Service and General Administration Department</p> <p>14. Support services for small livestock farmers</p> <p>15. Technical support to private enterprises investing in livestock.</p>

With regard to these rules a number of observations can be made. Functions such as ‘disease surveillance and control’ and ‘milk and meat safety measures’ are present or have been included without any significant follow-up in the shape of supportive frameworks or criteria.

Many functions are inadequately or inappropriately defined leading to overlaps with other department functions and providing inaccurate focus. For example a function added in the 2010

revision of the rules reads “Modernization of public sector slaughter houses” when establishment and modernization of public sector slaughterhouses is a mandate of Local Governments and the role of L&DD Department is that of regulation. Again item 1(d) of the revised statement of rules states “Matters relating to veterinary education, training and research”, which indicates both regulation and provision of veterinary education and training. Keeping in view that the Department does little regulation, and gives more attention to establishing and managing institutions of veterinary education, specific inclusion of words pertaining to regulation would have helped provide direction and focus.

Some functions listed are already covered or subsumed by other functions. For example “Support to small livestock farmers” is covered by the function “Communication and extension,” unless it means provision of subsidies or capital to small livestock farmers, in which case it is inappropriately worded.

A number of functions are absent when they are performed by the Department actively. For instance the one function not included in 1974 or 2010 statements of rules, which is a major ongoing activity, is disease treatment. A number of functions such as production of biologics continue to be present when they are ideally performed by the private sector. Government willingness to continue performing these functions appears more to do with sustaining existing government bureaucracies rather than any market needs or private sector inability to deliver the same. Some functions are so generically stated as to be meaningless. They also allow the Department to put any interpretation on them and thus increase its mandate at will. For instance item No 9, in the 2010 revision reads “Policy and regulatory framework” which clearly means everything and nothing. For a government institution, which has grappled to discover its role in the livestock sector the Rules of Business are of little help.

3.3 Existing Policy Derived From Legal Instruments

While there is no comprehensive government policy document for the livestock sector in Punjab there are substantial interventions in specific areas of the sector. These interventions in terms of legal and regulatory frameworks give an indication of government policy in the livestock sector.

A review from a policy perspective⁸ reveals that existing enactments clearly indicate continued governmental desire to control market operations. For instance laws still prohibit slaughter of useful animals, give monopoly of opening cattle markets to local governments and grant the power to fix prices to Government

The existing laws controlling livestock, meat and milk markets are the subject of a separate legal review, but the policies reflected in these laws show a degree of government involvement which limits competition and creates distortions. Apart from the unnecessary ownership and management of assets including slaughter-houses and livestock trading facilities, government policy creates distortion by limiting entry to markets, or creating unequal costs of entry. Government policy also authorizes retail market price regulation for meat and milk. This limits competition, prevents optimal allocation of resources, and restricts incentives for delivering quality. Price control mechanisms such as market committees may also be constrained by a lack of professional organization and supporting research.⁹

⁸ See Annexure A for policies in specific areas of the Livestock sector as derived from legal and regulatory instruments

⁹ Pakistan: Framework for Economic growth, Planning Commission GOP 2011

Enactments also reveal regulatory efforts in some but not all aspects of the livestock industry. For instance compound feedstuff production is regulated but semen production and use is not. Again product differentiation systems are absent and producers are not required to label most produce. Absence of enactments reveal regulatory vacuum in area of disease control, curative health standards etc. Specialized requirements of livestock medicine are also not catered for and the same legal regime deals with human and animal medicine.

3.4 Existing Policy Implied From Budget Priorities

Expenditure patterns also provide an indication of actual departmental policy. These patterns reveal a desire to improve the capacity of L&DD Department to perform its mandated functions¹⁰, increase supply of veterinary practitioners and paramedics¹¹, undertake disease control¹², improve curative services¹³, enhance milk and meat productivity through better extension services and genetic up-gradation¹⁴. Expenditures on curative services are maintained despite the fact that the Department has indicated that it wants to focus more on preventive health and allow the private sector to provide the bulk of curative services¹⁵. Development expenditure patterns clearly reveal that the department is still investing considerable sums in curative services and limited amounts in disease prevention.

In 2010-11 budgetary allocation on Livestock was Rs.1945.976 million. In 2011-12 the expenditure allocation was increased to Rs. 2354.152 million. An analysis of 2010-11 budgetary allocations reveals that a large segment of funds- Rs 660.07 million goes to breeding operations on Livestock farms, the next largest portion of funds- Rs 500 million goes for treatment of Livestock animals, poultry research takes up Rs 134.22 million and the University of Veterinary and Animal sciences gets Rs 94. 26 million. Administrative expenses of the main livestock secretariat are Rs 68.19 million. Budgetary allocations clearly indicate that focus remains on maintenance of Livestock farms, breeding operations and curative treatment. Department Institutional data also implies a strong policy commitment to supporting livestock health measures and maintaining livestock farms.

¹⁰ Scheme No: 2867: Revamping performance management systems of LDD, Estimated cost Rs 25.6 3 million,

¹¹ Scheme No 2879: Establishment of Bahawalpur University of Veterinary and Animal Sciences, Estimated cost Rs 3,500 million; Scheme No 2877: Establishment of Para Veterinary School at Layyah; Estimated cost, Rs 100 million

¹² Scheme No: GS 2869; Establishment of Animal disease surveillance and reporting system in Punjab, estimated cost Rs 82 million

¹³ Scheme No: GS 2873: Support services for Livestock Farmers, Estimated cost Rs 964.151 million; Scheme No 2874: GS No 2874: Establishment of New diagnostic Laboratories in Punjab, Estimated cost Rs 160 million;

¹⁴ Scheme No GS 2881; Enhancing Milk Production in Punjab; Estimated cost Rs 500 million; Scheme No GS 2883: Enhancing Beef Production in Punjab; Estimated cost Rs 774 million.

¹⁵ Consultations with the LDD officials

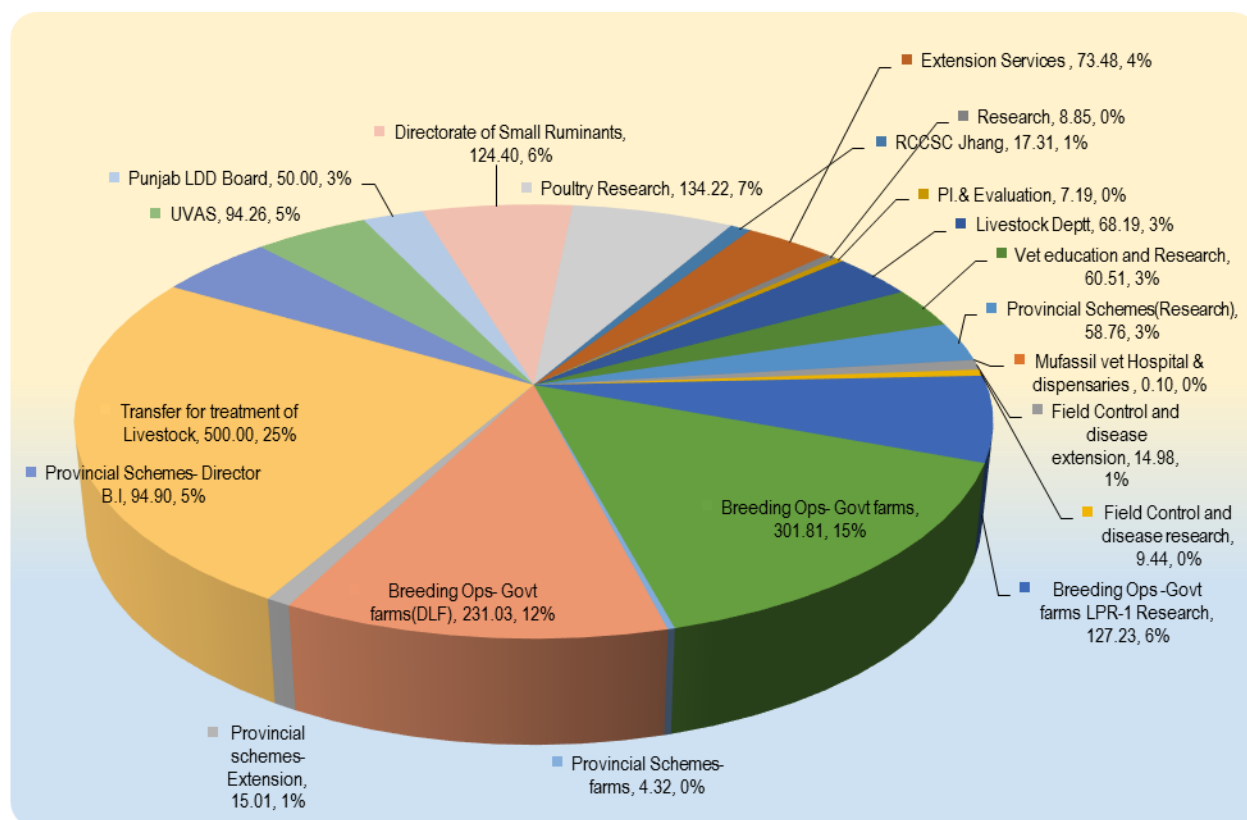


Figure 1 Budget Allocation of the Livestock Department

3.5 Other Policy Concerns

A continuing question involves livestock policy coordination with NGO project interventions. There is no apparent policy to use or adapt project models after projects are completed. For example there is no policy to sustainably apply the extension techniques introduced by development projects for providing subsistence producers with livestock health and production knowledge. An example is the UNDP Community Empowerment through Livestock Development and Credit¹⁶ Project. This project has enhanced income and employment for rural women in Punjab through improved livestock skills development, improved livelihoods and food security, based on a partnership with a corporate processing company.¹⁶ In a further example with the Project implemented by the Australian Centre for International Agricultural Research, “Improving dairy production in Pakistan through improved extension services”, four project areas have been established in Punjab, which successfully provide assistance to smallholder dairy farmers by facilitating knowledge transfer relating to nutrition, health and reproduction.¹⁷

¹⁶ CELDAC Mid-Term Review 2009

¹⁷ Australia/Pakistan Agriculture Sector Linkages ACIAR Project LPS/2010/007

4. The Existing Policy Situation in Sindh

4.1 Policy context

In requesting assistance to prepare a policy framework and new legislation Sindh is faced with possibly greater policy challenges to those faced in Punjab. Sindh with a total of 15 million cattle and buffaloes has less than half the number of Punjab's cattle and buffalo population, but also has only an average per year milk yield of 0.85 tonnes per animal compared to Punjab's 1.46 tonnes per animal¹⁸. Sindh has greater incidence of poverty than Punjab, with 47% of the rural population compared to 39% in Punjab below the poverty line¹⁹, and there are significantly more landless with 59% in Sindh compared to 45% in Punjab. With Sindh and Southern Punjab established as the poorest regions in Pakistan²⁰, and with poverty increasing, there is data from Asian Development Bank studies that poor livestock farmers mainly supply animals to informal processing or home consumption use, as only 2% of formal household income is generated from livestock.²¹ From both social and economic perspectives this apparent lack of contribution by subsistence farmers to the Sindh livestock economy is background to Sindh Livestock and Fisheries Department rhetoric which is strongly aimed at treating poverty associated with the livestock sector.

4.2 Policy documentation

The theme of poverty alleviation was articulated in a presentation by Sindh Livestock and Fisheries Department²². The presentation quoted the Department's Mission Statement as:

To create an environment for enhancement of livestock production as a vehicle for social security, poverty alleviation, rural development and to contribute towards the domestic requirement for food and exportable surpluses.

Apart from reinforcing the knowledge that the Sindh Livestock and Fisheries Department is focused on social objectives, this is not the basis of a policy framework. It is not a clear statement of the role of Government in protecting public interests, providing necessary goods and services, or enforcing laws which will allow livestock to be a vehicle for poverty alleviation and rural development.

Complementing this statement is the display of the function and objectives of the Livestock and Fisheries Department on the Government website.

¹⁸ Report: Dairy Development for the Resource Poor ILRI 2008

¹⁹ Anwar et al PIDE Development Review

²⁰ Pakistan Poverty Assessment, World Bank 2002

²¹ Agricultural Growth and Rural Poverty, ADB Working Paper No 2, 2005

²² Sindh Livestock and Fisheries Department Presentation to Sindh Livestock Show 2011

The main function of Livestock and Fisheries Department is to improve availability of Animal Protein in human diet so as to achieve the required quantity of 27.5 grams daily'. Departmental objectives include:

- Providing extension and technical services up to village level regarding disease control of livestock, poultry and fish development
- Providing training to rural farmers regarding modern technologies for imparting knowledge regarding establishment of Dairy, Fish and Poultry Farms in the province
- Providing modern technologies regarding increased production of milk, beef, white and red meat, fish and poultry, and eggs etc.

As a policy statement this is of limited value, as it addresses only the technical extension and training functions. However it does reinforce the understanding that the role of the Department is a provider of technical support to all livestock farmers including subsistence-level producers.

The Sindh Planning and Development Department documentation of funding allocation listed in the Sindh Development Review of 2008-9²³ has also indicated a strong element of support for farmers including the disadvantaged. The following approved schemes include a human resource development scheme for staff and farmers costing Rs 170 million, a proposed scheme costing Rs 422 million for developing support services for farmers in 19 Districts, hostel facilities to enable vocational training for farmers, and a proposed scheme costing Rs 340 million which will fund transfer of technology training to 77,520 farmers,. In addition a scheme has been commenced to train rural women for increasing livestock production. At cost of Rs 221 million 128 female trainers will be trained and then provide training for village women over four years. These budget figures when compared to a total of Rs 288 for disease surveillance and vaccine development suggest a public sector policy which gives farmer training high priority.

4.3 Government core functions

The Department of Livestock and Fisheries presentation²⁴ lists its core activities as :

A. Extension and Development

- (i) Animal Health
- (ii) Animal Breeding
- (iii) Livestock Planning and Development

B. Research

- (i) Veterinary Research and Diagnosis
- (ii) Livestock, Poultry Production

C. Training

Department institutional data and continued investment implies a strong policy commitment to supporting livestock health measures. Livestock disease initiatives include surveillance programs for Bovine Tuberculosis and Brucellosis at a cost of Rs 59 million, and establishment of disease-

²³ Sindh Development Review of 2008-9

²⁴ Sindh Livestock and Fisheries Department presentation to Sindh Livestock Show 2011

free zones successfully for Rinderpest at a cost of Rs 170 million with the support of EU funding. Public sector production of vaccines is also an important focus of livestock policy, with Hemorrhagic Septicaemia and Enterotoxaemia vaccine production supported at a cost of Rs 59 million, and anthrax, black quarter, brucellosis, tuberculosis and CCPP, either already produced or planned.

4.4 Livestock and meat market policy issues

In general livestock marketing and meat processing policy is consistent with other provinces despite rollback of devolution changes. Government policy provides for the ownership and management of assets including slaughter-houses and livestock trading facilities, and authorizes retail market price regulation for meat and milk, limiting competition, preventing optimal allocation of resources, and restricting incentives for delivering quality.

4.5 Import and export policy

Meat exporters have invested in private processing facilities for the export market, in the absence of any regulation or facilitation of export meat products. Standards are set and compliance with standards confirmed in Sindh by inspectors from the destination country. Currently Halal accreditation also is not standardised, as there are differences in Halal interpretation accepted by individual government accreditation agencies, for example between Malaysia, Indonesia, The Philippines, and Gulf countries.²⁵ The private sector is also developing Halal accreditation capacity, although companies providing accreditation services also have wide variation in their interpretation. Policy regulating import and export of other commodities is also an issue, including export of milk, and live animals, and future import of feed raw materials or value-added products such as soybean meal or total mixed rations. Formulation of meat export policy should involve consultation with The All-Pakistan Meat Exporters and Processors Association, which includes in its Mission the aim “to be the first point of contact for governments on red meat issues”.²⁵

4.6 Sustainable value from project interventions

The Sindh government has been inconsistent in adapting project intervention models into accepted and continuing producer support mechanisms. A dairy industry project funded and managed by ACIAR is commencing which will develop dairy extension capacity. This has already been successful in Project areas in Punjab. A policy issue is how to ensure that useful models are sustained, and that capacity developed in institutions and communities does not disappear after Project funding moves away. This occurred after the 1994-2000 ADB Livestock Development Project concluded in Sindh, where the extension mechanisms collapsed after completion, and staff trained in extension techniques were removed from these activities. The ADB Review concluded that sustainability of projects is doubtful where budgetary allocations are unlikely to be maintained after project completion²⁶.

4.7 Sindh Dairy and Meat Development Company

To further understand the Department’s thrust in livestock policy it is helpful to study the basis for the establishment of the Sindh Dairy and Meat Development Company. The concept behind this

²⁵ “Globalizing Halal Standards: Issues and Challenges”, W.M. Wan-Hassan *Halal Journal* 2007.

²⁶ ADB Project Performance Audit Report: Livestock Development Project. 2004

structure is that through termination of some existing Department projects funding was possible for four years to set in motion this autonomous entity until private investment comes in to sustain it. Stated objectives of the Company include rehabilitation of Government farms and establishment of community farms, extension services and training of farmers, breed improvement, forage improvement, and links to milk processors. Although the Company's focus is stated to be directed towards assisting the less advantaged end of the livestock spectrum, the role of the company as a government entity is not clear.

4.8 Hub Development

The Livestock and Fisheries Department has also demonstrated implied policy through its funding of the "Cattle Colony" concept. This is a development planned for all districts in Sindh as integrated milk and meat development areas which would have access to slaughter and processing facilities. The concept involves collaboration with the private sector, which would take advantage of concentrated production of meat and milk from an organized group of farmers. This model draws from the "hub" concept used by large private sector companies such as Engro Corporation to develop attached supplier groups. Farmers in the hub are assisted by the company with technical support, veterinary services, and organization of production inputs. The concept is seen as advantageous for company and farmer, but it has the limitations of capturing supply into the high-end packaged milk market, and neglecting the bulk of supply destined for informal markets.

Policy issues are also present associated with existing milk colonies such as Landhi Colony, where dairy enterprises without any land or capacity to access to credit wish to develop in scale and technology but are not included in any formal milk processing arrangement.

5. The Existing Policy Situation in Balochistan

5.1 Policy context

A picture of Balochistan's livestock sector can be drawn from the following statistics:

The province has 48% of the nation's sheep flock (13 million), 22% of Pakistan's goat flock (12 million), and 41% of the camel population (377,000). In addition there are 2.6 million cattle and buffaloes which is 8% of Pakistan's population. The feed resource for these animals is the more than 95% of uncultivated area which is grazed arid rangeland. Livestock are important to 75% of the population, including the approximately 30-35 % of livestock owners who are transhumant or nomadic. As a result of the 1996-2004 drought livestock losses were estimated at 40-45%.

Economic indicators also reflect the special situation of Balochistan. With 5% of Pakistan's population but only 3.5% of the economy Balochistan has the highest rate of poverty of the provinces, and the lowest per capita income. The incidence of poverty is increasing, possibly related to the employment of only 25% of the population in the labour force compared to more than 30% for Pakistan as a whole. As a consequence Balochistan scores the lowest in nine out of ten social indicators such as literacy, health, water and sanitation. Although partly reflecting the recent eight years of drought, these figures show Balochistan to be only on the periphery of economic and institutional development.

In the context of this picture the articulation of livestock policy will be very different from a province such as Punjab. Issues such as competition for resources such as water, dependence on rangeland as a nutrition source, the importance of small ruminants in livestock enterprises, and the impact of remoteness and transport constraints on communication and costs of a livestock enterprise are all particular Balochistan concerns to be influenced by a policy framework.

5.2 2. Policy documentation

The Balochistan Livestock and Dairy Development Department has provided a document which states:

Formulation of policy with regard to the following:

1. Development of livestock farms (sheep, goat, cattle and poultry)
2. Livestock production extension, feed resources and animal breeding.
3. Prevention/control of animal and poultry diseases
4. Veterinary training
5. Prevention of cruelty to animals
6. Prophylactic vaccination and production and health

7. Research on various disciplines of livestock production and health
8. Livestock breed conservation
9. Inspection of meat and milk
10. Registration of veterinary drugs
11. Prevention of disease from animals to humans
12. Storage of medicine/vaccines and scientific equipments
13. Development and strengthening of information technology sections at all district level offices for rapid reporting of the livestock activities.

5.3 Provincial policy interventions

5.3.1 Dairy development

In a number of areas there is an apparent need for development of capacity by the public sector. For some of these issues the scale of activity is presently limited, but policy is necessary to ensure future standards. Currently there are limited resources and no action plan to oversee inspection of meat and milk products. For milk this is in the context of local production of 125,000 litres compared to a demand of approximately 400,000 litres. Local dairy farmers are seeking to expand production, but believe that they should receive government assistance to expand capacity.

5.3.2 Livestock marketing

Livestock markets which remove some of the exploitation and distortion of the normal local government-controlled markets are also a policy objective. Reports that producers and agents continue to hold markets outside the local government system, and the recent participation of LDD Dept. in market management indicate a need for policy change. Although Sindh and Punjab actively source livestock from Balochistan for value-adding or processing, there is little apparent focus on development of this capacity in Balochistan. One Government slaughter facility in Quetta is serviced by one veterinary inspector delegated to Local Government. With lower standards in 34 other slaughter houses there are indications that development of a meat industry with certification and rewards based on quality differentiation needs capacity development and a policy framework.

5.3.3 Breed improvement

Some dairy farmers have been willing to invest in Friesian genetics from outside Balochistan. However there would appear to be a place for continued government involvement in development of cattle breeds which are able to survive and produce in the extremely harsh environment of areas such as Sibi. These include the development of dairy crossbreeds, and the promotion of productive beef breeds such as the locally developed Narimaster and indigenous Bhagnari. Continued Government activity to assist in breed development, through subsidized AI at 60 centres, does not appear to threaten any private activities. While livestock breed development

continues to be a function of the government livestock farms, the value and conduct of research at these farms needs scrutiny to determine if it could be better conducted by specialized institutions, as there is a need for rigorous and targeted research for specific Balochistan problems. In particular there is a need for breeding policy which ensures scientific monitoring and survival of indigenous breeds and genetic resources, as these tend to be threatened by the transition from subsistence to commercial livestock enterprises.

5.3.4 Disease surveillance and treatment

Core activities such as prevention and control of animal disease are subjects where strengthening of public sector capacity is indicated. This is supported by the estimation that only 5% of animals currently receive vaccination against disease (despite subsidized service). Migratory flocks which provide 80% of the income for their owners are particularly affected by this inadequate protection measures. Livestock migration increases the risk of contagious cross-border diseases such as FMD and PPR. Support for improved data collection and analysis, and up-grading of epidemiological resources is implied. Lifting standards of vaccine production ultimately through private sector involvement is recommended. Locally-trained paravets should also have access to a qualification process. The reported annual mortality rates of 30-35% for small ruminants and 20-25% for large ruminants confirm disease control as the continuing main threat to the livestock sector, emphasizing the need for the livestock-owning stakeholders to be a vital part of the developing policy in this area.

5.3.5 Extension services

Extension delivery in livestock production as well as health is an area where strengthening of capacity is necessary for the Department. Current coverage is assessed to be to less than 30% of the rural population. . The approach of the US Assistance to Agriculture in the Balochistan Border Areas (ABBA) Project provides a model for delivery of community capacity development and technical awareness. It has achieved more than 20% increases in income partly through community cost-share projects, links with LDD to train women health workers, and a rational approach to livestock market development (also in conjunction with LDD Department).

Policy is indicated which can arrive at a sustainable model for community livestock health, with personnel from livestock communities being trained based on Project strategies and also possibly learning from human village health models.

5.3.6 Private sector investment

Although the livestock production sector is very important to the provincial economy, the degree of private sector enterprise is relatively low compared to other provinces (only 2% of Pakistan private sector operates in Balochistan). This is reflected in the general outflow of primary livestock product without capturing benefits in terms of commercial value-adding enterprises. Provincial government response to this situation is to propose interventions (such as involvement in wool trading) which may be difficult to sustain commercially, although there may be a number of niche markets for specific meat and fibre products generated from rangeland production systems. There continues to be an assumption that any industry initiative must come from the government rather than the private sector, which needs incentives and an enabling environment.

5.3.7 Resource management

The lack of confidence of producers to engage in modern livestock practices such as lamb fattening is understandable following the worst drought in 70 years. The reality of rangeland degradation due to overgrazing and drought indicates the need for monitoring of changing rangeland condition. The assessment even in 1995 before this drought was that 93% of rangeland was degraded. Any policy related to actual future rangeland management, as well as planning for the next drought, will need to be based on better knowledge. The consequence of damaged ecosystems is declining productivity of the basic resource for livestock production.

5.3.8 Capacity development

For each issue there are constraints as a result of limited capacity. This is a feature of both public and private sector, with human resource development needed for institutions undertaking core functions. Examples include disease surveillance, market facilitation and extension management. Assistance is also indicated to help private entities to build up the technical and managerial skills necessary to function in a business environment. In particular capacity development is vital for communities dependant on livestock, who must be helped to take advantage of increasing demand for livestock products as well as learning to manage rangeland more sustainably.

6. Livestock Policy Impacts

6.1 Livestock market studies in Punjab and Sindh

Livestock markets provide an example of unsatisfactory policy creating distortions and inefficiencies in an industry involving 140 million animals. All livestock, except for those which die, are gifted, or consumed informally, are traded at least once in their lifetime, and some a number of times, suggesting annual trading of at least 20 million animals. The trading of livestock is therefore a very significant business activity in Pakistan, as well as end-point for producers' livestock enterprises.

To investigate and assess policy constraints in livestock marketing a Rapid Market Survey was commissioned by FIRMS Project, with information collected relating to 144 mandis in Punjab and 90 mandis in Sindh. Detailed studies were also conducted on a sample of twelve important mandis. The study included mandis held at different levels ranging from primary collection markets at town level to major terminal markets, either on a regular basis or for a special demand such as that associated with Eid-ul-Azha. The study reviewed the way mandis are managed, listed the various stakeholders, and identified deficiencies and distortions in current practices.

The study recorded that rights to manage a mandi are auctioned out by the relevant local government to contractors. The terms and conditions of the contract are only concerned with financial matters and not provision of facilities in the market or any other responsibilities. The sum involved may be over Rs 100 million annually for a terminal market, which may trade more than 10,000 animals in a day. In Punjab local governments expects to receive revenue of Rs 2,042,204 million in total for 2011. Charges and methods of collection by mandi contractors vary, although charges of 4.5-5% of the animal's value are specified in the contract with local government. Actual entry costs vary from Rs 10 to Rs 135 per animal, and exit fees may also be charged. Regular traders are mostly charged at discounted rates compared to farmers.

The managing contractors for most mandis do not provide basic facilities such as shade, water for humans and animals, ramps for loading, weighing facilities, troughs, walls, sanitation, and drainage. This is commonly due to the fact that the mandi site is often leased land, or unused wasteland. Veterinary services are also rarely present to monitor livestock health, to regulate entry of diseased animals, or to ensure animals infected with contagious diseases are quarantined. There is no certification of health status for buyers.

Participants in mandis normally consist of farmers, contractors and traders. Farmers are in the weakest position having relatively little information about market prices and trends. No system of market information is available from any agency, and participants depend on contacts and personal networks for market knowledge and power. Brokers or agents facilitate transactions between seller and buyer. Brokers' charges are in the range Rs 50-100 for small animals and Rs 500-1000 for large animals, possibly charging both seller and buyer to finalize a price. Commission agents working in large markets also charge a commission from sellers and buyers and provide services such as shade and water and advances for costs such as transport. Actual transactions between sellers and buyers are conducted as a secret process, so that price transparency is not possible. Traders also operate in the gap between producer and end user, aiming to receive a margin as a result of market knowledge, or for services including transport, and sorting to increase size and uniformity of sale lots.

Verified liveweight information as a basis for livestock price determination is not available, and all transactions depend on subjective estimation of weights and values by sellers and buyers. Other relevant information is rarely made available such as age, pedigree, health status. Milking capacity may be deliberately misrepresented. No records are kept by mandi contractors or other functionaries of numbers of animals yarded, traded, or any values recorded.

6.2 Livestock market distortions and inefficiencies

The survey highlights the distortions and inefficiencies in the provision of market services due to the nature of public sector involvement, and the effects of lack of regulation on the conduct of livestock markets. As the delivery of these services is the legal right of local government, in each local government area there is no opportunity for the private sector to provide alternative services. As a result there is no competition to lower costs to participants, or to provide improved services or infrastructure. The current monopolistic situation provides no regulatory or financial incentive for mandi managers to even conform to minimum standards of service.

Without regulation of market practices the trading of livestock is open to corruption and distortion. Distortion of the price mechanism is primarily due to inadequate market information. This results from buyer practices to restrict transparency and knowledge of transactions, which would be available in a properly regulated open auction system. It is also due to lack of participants' knowledge of livestock value, which could be remedied with support from regulated, independent, objective weighing systems. Finally lack of market knowledge is due to absence of an independent market reporting service which uses market data (such as throughput), standard descriptors for all livestock types, and expert market price observers, to provide details and analysis of indicator markets.

Distortions are also prevalent due to lack of efficient and regulated business practices. These include standard rules of conduct for open auctions, settlement of payments, and scales of charges to users. Regulation should also remove active collusion of buyers, which is an expected distortion where groups of agents operate together regularly in the absence of a transparent market process, in an environment designed to limit competition.

Interruption to free and open competition also occurs due to market participants having entry and exit barriers, as well as unjustified, unequal and unpublicized transaction costs. Barriers include high transport costs to market for small-scale users, unregulated market entry, and exit barriers and exit barriers which include cost of transport home if prices do not meet expectations. Transaction costs are set by brokers and agents on the basis of what an individual seller will accept. These barriers and costs encourage market participants to use informal and illegal markets where there may be lower costs, no regulations and still potential exploitation.

Meat price controls at the end of the supply chain are also a factor in distorting market competition and the price mechanism. Distortion may arise through butchers/buyers obtaining margins at the expense of retail quality standards by buying old, diseased animals. It is also a result of some market participants having different price constraints through operating in unregulated illegal markets.

The consequence of such market distortions is unnecessary cost for participants, and unequal distribution of costs. This distortion prevents rational allocation of resources, affecting confidence and investment in livestock production, and ultimately affecting economic activity. Conversely markets which allow clear price signals, are professionally supported with market information, and

are regulated to ensure competition and standards of business practices, can only have positive effects on production decisions and commercial confidence.

6.3 Meat processing policy issues

The functioning of the meat slaughter and processing industry is based on an out-dated and unsatisfactory policy framework resulting in distortions and inefficiencies. All slaughter and processing of meat for domestic consumption is legally required to take place in Municipal facilities. Without opportunity for private sector participation there is no competition, and no incentive to invest in more efficient processing technology and systems which enable greater efficiency and raised production standards. Increased demand has not been accompanied by higher quality product and enhanced economic activity. On the other hand, slaughter and processing of meat products destined for export is not subject to this regulation, resulting in extensive private investment in export processing facilities.

Retail market policy which regulates prices for meat products also has the capacity to create distortions and inefficiencies. Prices for meat sold in the domestic market are controlled by local price-setting committees, based on the historic need to ensure supply of an essential commodity to consumers. This requirement affects competition in the supply chain, as well as affecting quality due to cost-cutting strategies to ensure processor margins under a restricted price scenario. Exemption from price control of meat which has been packaged is a device which allows higher-quality meat at retail outlets to be rewarded with higher prices.

Distortion and inconsistency are apparent in existing quality regulation, with disparity in standards unequally affecting costs of processing and compliance for different products. Currently carcass inspection and quality accreditation (with compliance indicated through a branding process) is the responsibility of L&DD Department. This practice is associated with lack of consistency, for example in remoter localities the responsibility may be delegated to milk inspectors, and informal slaughter enterprises have no disease or quality checks. Standards associated with the branding process are out-dated, and existence of cost recovery procedures for the accreditation process is unclear. Most importantly there is no independent entity to oversee any part of the quality or food safety auditing.

Quality standards for meat destined for export are not subject to provincial regulation, but quality is ensured by foreign inspectors in Pakistan, using foreign standards, at a cost to exporters. There are also inconsistencies in Halal certification requirements depending on product destination, As protocols for Halal certification are not standardized, costs of processing and costs for providing certification vary, and there is opportunity for distortions in the market as a result.

The law which prevents slaughter of “useful animals” is also outdated, and has the effect of distorting competition in the market place. It may be selectively applied, and ensuring compliance can be difficult or impossible in the market place (for example in determining the pregnancy status of a cow, or the age of a male lamb.) .

Inconsistent application of current out-dated environmental and occupational health and safety laws within slaughter and processing facilities is another area for distortion of competition, as processors avoiding compliance are also able to avoid significant costs.

7. The Need for a New Policy Framework

The absence of an effective policy framework for the livestock sector is associated with legislative developments in Pakistan..The laws relating to livestock in Punjab, Sindh and Balochistan which were mainly promulgated in the nineteenth and early twentieth century reflect the existing policy framework of the time. These laws reflect a period under British rule when governance and livestock industry realities were different to the current situation in Pakistan. In most cases they are now irrelevant, and some of the more recent ones are already outdated. More significantly particular laws may now have the effect of restricting the efficiency and constructive development of the livestock sector. As a result of this situation there is no clearly articulated policy framework for the provinces regarding livestock.

Lack of a comprehensive policy framework is also related to the transitions involved in constitutional devolution of power in the past decade. In the first phase of devolution of responsibility from provincial to local government livestock was one of the subjects, with the consequence that issues such as cattle markets, slaughterhouses and meat markets were affected. In the second phase of devolution under the Eighteenth Amendment responsibilities were transferred from the Federal to Provincial governments. Areas affected included drugs and medicines, and veterinary profession registration, and at this stage these existing Federal laws have not been replaced by Provincial laws, leaving provinces to fulfill responsibilities for which they have no technical or financial capacity.

A third reason for the continued existence of an inconsistent and irrational policy setting is that the present framework tends to safeguard the existence of some public sector functions which do not meet stringent accountability tests.. For example, it may benefit Municipal governments to retain the rights to manage livestock markets and slaughterhouses. Under these monopolistic conditions economic rent can be extracted without supplying services or addition of value to the product

What are the effects of an inconsistent, irrational and unsatisfactory policy framework? One effect is the private sector is restricted from entering areas of business dominated by government, and also has limited incentive to develop markets, create demand, and increase economic activity. The consequences are distortion of market forces and inefficient business processes. In the livestock sector, although there is potential for increased growth, the current policy environment has helped to reduce economic performance to a level which is unacceptable under the current conditions of demand for meat and dairy products which exceeds supply. Dairy productivity is only 22% of world benchmarks, as 30-40% of animals are estimated to be underfed, and 90% unprotected from disease. This situation is associated with an extension service which fails to meet the needs of herd owners particularly the 70 % of herders with less than 5 cows. Finally an indicator of the current need for a policy framework is the fact that only 5% of dairy product is currently processed and sold through regulated markets. Producers of the other 95% are unable to take advantage of the potential benefits of an efficient, regulated and profitable industry.²⁷

²⁷ Govt of Pakistan Planning Commission Report: Framework for Economic Growth 2011

The consequences of an inconsistent and illogical policy framework for the public sector are under-capacitated institutions which lack a focus on key tasks. This can be demonstrated in each province regarding the issue of livestock department responsibilities in the area of social development and poverty alleviation. Based on the knowledge that poverty, landlessness and subsistence farming systems are strongly associated with livestock ownership, it is apparent that government social policy uses livestock departments as a means of delivering funds and programs. A logical policy framework would carefully delineate roles for institutions, to enable accountability, and concentration of resources on key objectives.

8. Policy Principles Based on International Practices

In formulating a policy framework it is possible to learn from other jurisdictions where the livestock industry is regarded as being efficient and profitable. Australia provides an example of a Federal/Provincial (state) government system, with Federal policy dealing with issues listed in the Federal Constitution, and each state formulating its own policy for remaining issues. With a livestock industry strongly attuned to export markets, Federal policy mainly deals with the current and future integrity of exported product. State government policy focuses on protecting public interests and rights and minimal interference with a well-regulated private sector.

China is a contrasting example of a centrally-controlled administration where policy has moved rapidly to keep up with changing standards of living, governance, and business practice.

China shares many livestock production characteristics with Pakistan. China's fast-moving transition from completely public to a market economy based on private-sector commercial enterprises can provide some lessons regarding policy development. In this geographical area the predominant production system is semi-subsistence in nature, as a result of distribution of communal assets to households. During the last fifteen years there has been a natural redistribution of livestock assets as some herders leave the industry and others expand. There has been pressure on rangeland resources, strong government policy encouragement to the sector, and extreme price movements as herders freed from state control over-invested in particular enterprises such as wool and cashmere.

In China the legislative framework for policy determination is not always apparent, although a number of statements of enacted law are available. Policy is also enunciated through plans which are targeted at outputs. For example the current 12th Five Year Plan for the meat industry lists many objectives for rationalizing and improving the processing sector. Most difficult to interpret are high-level signals from Central Government such as "Opinion of Accelerating Livestock Development" from the Ministry of Agriculture in 2003.

The following are a series of principles for establishing a policy framework based on aspects of the Australian and Chinese situation:

8.1 Elimination of market distortions through restriction on competition

Competition is promoted as a principle at all levels of business activity in Australia and overseen by a Competition Commission. It is promoted in livestock markets where the principles of competition are best served by transparency, and objectivity. Transparency is achieved through market codes of practice which demand standardized open auction systems, and market reporting which is funded by producer levies and uses standardized descriptions and mass media to accurately and efficiently inform livestock sellers. Objectivity in market codes of practice is achieved through standardized livestock curfew and weighing prior to sale (for cattle), or through sale direct to processor and payment on the basis of carcase weight and grade (termed "over the hooks").

Competition is also applied in a wide range of other relevant activities, for example research funding where universities, government departments and private entities compete equally for grants.

8.2 Creation of a demand-driven approach to markets

Australian livestock producers pay to ensure product quality assurance and traceability is delivered to consumers. This process is funded by a transaction levy whenever animals change ownership, supporting a company which manages the processes. The first step is Livestock Production Assurance, which provides vendor disclosure to buyers of an animal's risk of exposure to chemicals, medicines or hormones. Subsequently during processing compliance to standards of hygiene etc are assured by the producer and processor-owned company Ausmeat Ltd. Finally the producer-owned Meat and Livestock Australia Ltd develops demand through product promotion activities.

China as a socialist economy attempted to control supply of products. This top-down approach to managing supply has been modified in recent years towards strategies which allow market factors such as quality and promotion to stimulate domestic demand.

8.3 Recognition that there is a cost for provision of goods and services

Systems for cost recovery are a basic element of services provided to the Australian livestock industry. A producer levy helps to fund disease surveillance by the Livestock Health and Pest Authority. A further livestock transaction levy funds disease surveillance through identification/traceback programs, some research funding, market information services, and quality assurance. Compliance to export standards is undertaken by a federal body (AQIS) with full cost recovery from exporters.

8.4 Elimination of resource allocation distortions as a result of public ownership of business entities

Any business activity which could be undertaken by the private sector has long been enabled by Australian government institutions. For example the Australian Wool Corporation participated in the wool market with the aim of supporting prices until it was privatized in 1999. . Public grazing lands are currently being sold or converted to freehold title to allow private ownership. Manufacture of vaccines has been the province of private industry, licensed by an independent regulatory authority, except in the rare instance of an essential vaccine not being a commercially viable production item.

China has demonstrated commitment to facilitation of the private sector including privatization of former state-owned enterprises, and taken this a step further by encouraging foreign direct investment in situations where an industry does not have appropriate management and technical expertise to develop local production standards. Agricultural and livestock projects account for approximately 2.8% of the total contracted value of over US \$600 billion of investment.²⁸

²⁸ OECD Working Paper 2000/4

8.5 Representation for stakeholders in industry decisions

Stakeholders in Australia are encouraged to participate and consult in all policy development. As a pre-condition for effective consultation on livestock issues there must be processes to ensure that industry organization can provide meaningful and productive representation. In each of Australia's states there are active producer networks, farmers' associations which represent member views, and representation on federal commodity councils dealing with specific areas such as cattle or sheepmeat. This has also been an important recent development for farmers in China, where formation of industry associations has been a priority to allow government-farmer consultation and planning.

8.6 Industry self-regulation

This mechanism has proved effective in Australia in developing ownership of regulations, through industry codes of practice, for example for livestock markets, and for reducing costs of compliance. In China endemic corruption has limited the extent of self-regulation, emphasizing that success of this approach will vary with culture.

8.7 Independence of regulatory bodies

Processes have been developed in Australia to ensure that regulatory bodies are autonomous, with representatives from all stakeholder groups. For example Aus-Meat Ltd is the private company which ensures industry compliance with meat processing standards. It is a joint venture of Meat and Livestock Australia Ltd, which is producer-owned, and the Australian Meat Processing Corporation which is an entity composed of processor representatives. Note that while MLA is funded by statutory-based levies from producers, AMPC is currently funded by non-statutory collection of industry funds.

In China food quality issues have been similar to Pakistan, with largely informal meat and milk industry structures, and inefficient and out-dated municipal processing facilities. Due to extreme income disparity, to some extent between urban and rural consumers, this informal sector continues to exist providing lower quality product at a lower price. Improvement in food quality regulation has in recent years become a government priority with even more attention as a result of contamination of milk in 2008. Consumers seeking confidence in product quality have to depend on the credibility and reputation of particular company branding. Chinese policy is to ultimately regulate the informal sector, which still exists to cater for the disadvantaged consumer.

Quality regulation of exported food is also an issue particularly since publicized issues associated with quality of food exported to Japan. Lack of central control of Sanitary and Phyto-sanitary systems is proving to be a major problem.²⁹

8.8 Sustainable use of natural resources

In Australia the interaction of livestock with vegetation, soil and water resources is regarded as an important issue for livestock policy. Policy is delivered through regional bodies, termed Catchment Management Authorities, managed by a balance of government and private representatives. Authorities are funded from Federal and State sources. Environmental action is prioritized according to targets specified in Catchment Action Plans. In rangeland and wetland

²⁹ Dong and Jensen, Challenges for China's exports, CHOICES 2007

environments health of soil and vegetation is monitored through changes in indicators which include biodiversity and ground cover. Action to meet targets associated with these indicators most commonly involves removal of grazing, or specified livestock grazing management through landholder incentives. Rangeland owned by and leased from the government can be compulsorily destocked if threatened with environmental degradation.

The principles in the Grassland Law enacted by China provide an example of strong policy regarding the use of public rangelands. Objectives of this policy are protection, rational use and sustainable development of these public lands, assisted by monitoring and the power to close off these lands to exclude humans and livestock.

8.9 Independent policy for social and economic disadvantage

Australian farmers in the livestock sector have received special policy consideration in the past. All landholders may benefit from measures enacted for drought, flood and natural disaster, to ensure social resilience as well as production stability, and food security. However these measures are administered through independent federal and state-funded Rural Assistance Authorities. These are instituted with a particular focus on drought issues, providing targeted measures for livestock owners such as subsidized transport of fodder and livestock to markets from drought areas. Actions of this Authority are controlled by a Board made up of independent representatives drawn from rural industries.

8.10 Recognition of cultural sensitivities

This has become relevant recently as animal welfare in Australia becomes more important to citizens as a result of evolving cultural attitudes. Policy now takes these carefully into account, for example in the development of codes of practice for feedlots and industrialized management systems, livestock transport, slaughter methods, and cruelty to livestock due to lack of feed and care.

These principles can be stated as policy framework objectives.

1. Elimination of market distortions through restriction on competition
2. Creation of a demand-driven approach to markets
3. Recognition that there is a cost for goods and services
4. Elimination of resource allocation distortions through public ownership of business entities
5. Representation for stakeholders in industry decisions
6. Industry self-regulation
7. Independence of regulatory bodies
8. Sustainable use of resources
9. Independent policy for social and economic disadvantage
10. Recognition of cultural attitudes

Collectively they are represented in the policy framework vision statement:

To create an enabling environment for livestock business by removing market distortions, supporting efficient use of public resources and encouraging participation of private sector in the industry.

9. Proposed Policy Reforms for Key Areas of the Livestock Sector

9.1 Disease surveillance and control

Policy objectives:

Government capacity to conduct surveillance programs capable of detecting new exotic diseases, providing evidence of freedom from diseases, describing distribution and level of occurrence of endemic diseases, and assessing progress in control and eradication.

Government capacity to provide the technical and financial analysis (feasibilities, risk levels, cost-benefits) to enable decisions and strategies relating to livestock disease.

Regulation to ensure disease monitoring and reporting from private veterinary clinics, livestock markets, and slaughter/processing facilities.

Regulation to provide for the establishment of disease control and eradication areas for particular transmissible diseases.

Institutional requirements:

Development of capacity in L&DD Departments to achieve the above policy objectives.

Development of capacity in L&DD Departments to undertake strategies including quarantine, movement restrictions, mass publicly-funded vaccination, additional epidemiological research, and education targeted at private sector control.

Development of capacity in L&DD Departments to regulate disease monitoring and data collection at markets, abattoirs, and private veterinary clinics

A Federal agency to monitor and manage cross-border disease issues.

Private sector actions:

Control (vaccination) left to the private sector except where strategic programs are required for specific infectious diseases.

- Education required regarding cost-benefits of control, including diseases with sub-clinical expressions affecting production

9.2 Disease Treatment

Policy objectives:

- Disease treatment a private sector activity undertaken by private sector veterinarians or others (paravets, community livestock health workers, livestock owners), using registered and labelled medicines.

- Only veterinary medicines to be available to the private sector which are accredited and labelled for use under specific conditions.

Institutional requirements

An existing or newly-created body to undertake livestock medicine registration. This body to evaluate issues such as toxicology, residues, and occupational health and safety, and specify labelling attached to medicines before distribution. Labels will ensure that users are aware of conditions of safe use for humans, targeted animals, and the environment. Labels will specify how the medicine is to be administered, stored and disposed, and with-holding periods after treatment before consumption is allowable.

- LD&D Department to educate medicine users regarding the use of medicines in accordance with labels.
- LD&D Department may be contracted by the medicine registration authority to provide specialist advice regarding aspects of particular medicine use.

Private sector actions:

- Disease treatment at private veterinary clinics in accordance with labels attached to medicines.
- Disease treatment by producers in accordance with labels attached to medicines.

9.3 Vaccine production

Policy background

In the most recent study of Pakistan government vaccine production facilities³⁰ significant inadequacies in production systems and quality control were noted. Current production of vaccines by the public sector may limit the development of commercial supplies by the private sector. The issue of price, demand and availability of vaccines requires review. If the cost of vaccine produced by the private sector is limiting use by the livestock production industry, this is an issue for direct assistance from rural development and poverty alleviation sources.

Registration of private sector vaccine production in Pakistan or importation of vaccines would be undertaken by the same body which registers veterinary medicines (as in Australia). The vaccine production or importation standards required by the Agricultural Pesticides and Veterinary Medicines Authority are detailed in the Australian AgVet Code.³¹

Policy objectives:

- Vaccine production or importation to be limited to the private sector
- All vaccines to be registered for use, or approved for importation.

Institutional requirements:

- An existing or newly-created body to undertake registration through a process of assessment and approval. This body to evaluate conditions and standards of vaccine production, and assess and issue import permits before vaccines may be imported. This body to have the capacity to ensure standards of manufacturing practice, or quality assurance of imported product in respect to contamination with exotic pathogens.

³⁰ Bevan RE & HO Pakistan Veterinary Vaccine Review 2007

³¹ APVMA Manual of Requirements and Guidelines

- LD&D Department to be responsible for assessing vaccine needs, for undertaking risk analysis and cost-benefit analysis regarding vaccination strategies, and for delivering educational and awareness campaigns.

Private sector actions

- Commercial importation of approved vaccines

Development of commercial manufacturing facilities to acceptable standards,

9.4 Feed production and monitoring

Policy background

Note that for an industry which is based completely on feed production there is little attention to forage policy which stimulates appropriate research and supports development of feed as a commodity. Policy should insure livestock industry value from the Forage Research Institute, and the availability of basic feed testing facilities.

Policy objectives:

Quality assurance through the food chain by developing traceability of non-manufactured feeds purchased by livestock producers through a vendor declaration procedure.

Development of business practices supporting trade in non-manufactured feeds/forage as a commodity, based on availability of objective quality analysis, underpinned by a quality assurance process.

Institutional requirements:

Government capacity to administer the declaration process, which ensures that feed purchased by a livestock producer is free of potentially dangerous chemical residues, and that a producer can request the relevant declaration from suppliers of livestock fodder.

A government feed testing laboratory which can develop standards and protocols (to be developed as a component of the Fodder Research Institute).

Private sector actions

- Producers, feedlotter, dairy farmers and feed suppliers to adopt declaration procedures to identify responsibility and ensure traceback for residues.
- Commercial entities take over feed testing services as soon as systems, protocols and commercial viability are established.

9.5 Extension services

Policy background

Note that extension here is defined to include public and private sector activities relating to technology transfer, education, attitude change, human resource development, and dissemination and collection of information. It does not include some current government activities such as disease control and artificial insemination which have been regarded as extension.

Extension policy proposals are difficult due to the disputed issues in the science, and the extreme diversity of opinions relating to the processes, objectives and outcomes of different extension

models. The effectiveness of different models depends on many factors including cultural, social and economic nature of the targets, the technical or human resource focus of the programs, and the capacity and agendas of the agencies undertaking the programs. The difficulty of measuring and comparing the effectiveness of models, and politicization of approaches has contributed to argument regarding policy choices. There is a need for regular and inclusive negotiation and review of extension policy within an organization to meet changes of priority.

Some viewpoints in the extension debate are as follows:

- In developing countries large public extension services have been associated with little positive change for subsistence farmers. Public sector involvement in research and extension is littered with wastage and lack of relevance³².
- The shift by governments to the principle of “user-pays” is sometimes regarded as an ideological one. However while increased efficiency is often stated as the reason for privatizing public sector services, a desire for a reduction in government spending frequently lies behind this reasoning. Driving extension towards commercialization, and emphasizing efficiencies over welfare may be a threat to the ability of governments to deliver extension outcomes in important areas of public good. Although out-sourcing of government-funded research and extension programs by public sector agencies may be quickly taken up by private consultants and agribusiness, privatization may result in loss of control and reduced ability to meet key government objectives. Extension is not a simple choice between public sector and private service delivery.
- There is a perceived need for extension to address issues other than technology transfer. This is well documented in developing countries where human capital development is regarded as an essential part of extension programs with rural communities. Learning based participatory approaches to reinvent extension have battled for legitimacy in often highly conservative organizational cultures.
- The emphasis in Indian and Bangladesh extension policies on promoting partnership among extension providers including government institutions, NGOs and the private sector is constrained by a lack of a shared understanding among the central and lower management levels regarding the necessary cultural change for development of a partnership mode in extension.

Policy objectives

- Government institutions provided with capacity to deliver programs for the public good including technology transfer, education, attitude change, human resource development, and dissemination and collection of information.
- Development of mechanisms to enable contributions to funding of extension from industry, associated with input regarding extension needs.
- Private sector entities including consultants/agribusiness to be registered and facilitated to provide extension services where appropriate

³² Sulaiman R, Hall A, Extension Policy at the National Level in Asia, ICSC Proceedings 2004

- Government institutions provided with technical capacity to manage private sector extension providers.
- Social development and poverty alleviation activities to be defined, and managed independently of L&DD Departments.

Institution requirements:

- Departments responsible for extension (L&DD) to be given the capacity to deliver above programs and assess private extension providers for registration. This capacity in particular to include appropriately-trained staff.
- Tertiary training in appropriate disciplines needed for extension service personnel, (including livestock production, learning theory, human resource development, enterprise economic analysis, marketing, environmental protection etc.)
- An extension coordination committee to be convened by L&DD Dept to allow consultation and coordination between government institutions, NGOs and industry.

Private sector actions:

- Private extension providers to develop capacity and appropriately-trained staff to meet registration requirements.
- Private sector to develop skills to provide facilitation of producer group formation and collective enterprise development, disease management, marketing etc.

9.6 Breed improvement

Policy background

Preservation of indigenous breeds is regarded as a public good and the case for maintaining breeding pools of indigenous breeds is a strong one, with increasing risk of extinction or dilution of specific genetic traits. In the short-term there is a need to ensure availability and quality of indigenous dairy breeds to meet the increasing demand to provide the optimal cross between exotic and locally-adapted breeds, until private industry can produce these commercially. In the longer-term maintenance of this genetic pool by the public sector is the only reliable way to ensure that it remains undiluted. This is a function which private industry and the wider industry outside Pakistan should contribute to, as the breeds mainly used for production continue to become genetically narrower due to continued world-wide use of related material.

The same principle could apply to goats threatened by potential infusion of breeds such as Boer. Further in the future indigenous breeds of sheep could also be threatened, as demonstrated in China where exotic sheep breeding stock imports have flooded through traditional sheep areas.

Production and supply of semen can also be regarded as a public good in the context of an industry which is dominated by landless and subsistence-level small-holders. However before commitment to policy this needs careful review to ensure that this activity is not in competition with private suppliers and inseminators. Subjects for a review would include:

- Which indigenous breeds require preservation

- Actual cost to government of production of semen and cost of insemination services
- Effectiveness of processes for assessment of genetic status of government semen (progeny tests etc)
- Actual costs to semen users including informal charges by government staff
- Level of subsidy by government
- Availability and cost of commercial insemination services
- Survey of user characteristics, and analysis of ability of users to pay commercial rates
- Analysis of constraints to public AI services including semen quality and quantity, availability and training of human resources, geographical limits to service, and awareness/adoption issues for users.

Results of this review would provide the information needed to understand if government AI programs are competing with commercial services, the importance and potential expansion of government services for livelihood development, and the costs to government of maintaining or increasing the scale of these actions.

Interim policy objectives:

- Maintenance and preservation of herds and flocks of indigenous breeds to ensure supply of indigenous semen and breeding stock
- Facilitation and regulation of private semen production and insemination, to ensure standards of business practice, and fair treatment for consumers in regard to standards of semen quality and insemination, including disease transmission.
- Regulation of importation of semen aimed at limiting the risk of disease transmission.
- Facilitation and regulation of a viable breeding industry which meets the needs of expanding milk and meat production industries, with no restriction in private investment and trading in livestock genetics.

Institution requirements:

- Review of public sector breed preservation, semen production and artificial insemination programs
- Maintenance of indigenous herds and flocks of specific breeds depending on review
- Maintenance of AI services depending on review
- Assistance with the establishment of entities managed by the private sector to assess genetic merit of breeding stock, with technical input provided by L&DD Department

Private sector actions

- Stud industry development to supply semen and breeding stock

- Establishment of breed societies and industry organisations to monitor and measure breed quality and genetic progress.

9.7 Research and Development

Policy objectives:

- Prioritization of research based on formal engagement with each livestock industry end-users
- Funding contributions by end-user industries
- Accountability by researchers to funding bodies
- Monitoring, evaluation, and impact assessment by end-users, and measurement of adoption rates of research results.

Institution requirements:

- Research governance to be coordinated by an independent body which assesses current and completed projects and prioritizes and manages funding of future projects, with the independent body to represent government, funding agencies and industry end-users
- Establishment of linkages between research bodies and public sector extension entities
- All L&DD Department farm research activities to be reviewed regarding costs to public and benefits to end-users.
- Fodder Research Institute to be transferred to L&DD Department control, with research reviewed using the same criteria.

Private sector actions:

- Research bodies and private enterprise to compete for matching grants to undertake projects.
- Linkages between research bodies and private sector extension entities

9.8 Livestock Marketing

Policy background

Policy in Australia ensures competition by encouraging a range of entities to conduct livestock markets including local governments, registered businesses, and associations of agents. Market services (eg weighing) and infrastructure are not regulated, and standards are maintained through competition between markets to attract buyers and sellers. Overlapping federal and provincial policies are the basis for regulations associated with levy collection, compulsory identification of animals to enable traceability, standards of auction business practice, disease monitoring and control, occupational health and safety, and environmental impacts. Compliance with these rules is partly by self-regulation, using industry codes of practice administered by associations of agents and market managers.³³ Introduction of a similar system in the Pakistan context would require

³³ ALPA Livestock Auction Terms and Conditions of Sale

representative and unified industry peak bodies capable of self-regulation and supporting the interests of the whole livestock industry. To manage the transition to this situation requires leadership from a strong committee representing government and industry.

Policy objectives:

- Livestock markets to be conducted by the private sector, with commercial entities competing to offer market services.
- Market management entities to be regulated to ensure compliance with standards of market conduct, collection of data and collection of levies to fund market development.

Institution requirements and roles:

- Local government to regulate impacts associated with environment, traffic, and urban development
- Provincial government to be responsible for licensing of market management entities, and regulating standardized market rules (open auctions), levy collection, and market data collection.
- Provincial government to regulate market livestock disease monitoring and quarantine, and movement restriction when required.

Private sector actions:

- Commercial entities to invest in land and infrastructure, meet licensing requirements, and manage markets according to rules of market conduct.
- Peak bodies representing functionaries involved in conducting markets, which can consult with Provincial governments regarding market rules of conduct, and ultimately manage self-regulation processes.
- Livestock producer representative bodies which can consult with market management and government regarding market services and needs.

Joint action:

Provincial government to establish an authority funded from market transaction levies, representing government, producers, processors, agents and all other stakeholders, to manage the transition to market reform.

The authority to be responsible for advising market management regarding rules of market conduct, and developing capacity of industry associations to undertake self-regulation. Authority to oversee a market information and reporting service which employs specialists to develop standardized livestock descriptions, record prices, summarize data, assess trends, and coordinate information transfer to the media.

Meat processing and marketing

Policy objectives:

- Private sector free to undertake slaughter of livestock and processing activities to produce meat products for domestic or export use.

- Business entities to be licensed to undertake domestic processing, with accreditation based on issues such as standards of infrastructure, standards of operational hygiene, standards of environmental care etc.
- Removal of meat price controls in domestic markets

Institutional requirements:

- An independent authority to be responsible for processor licensing, and to develop standards and ensure compliance in all licensed processing plants.
- The independent body able to contract out its services, for example to exporters.

Private sector action:

- Private sector processors to fund the independent licensing authority

9.9 Commercial livestock production

Policy background

Currently a number of government livestock and poultry farms exist. Where these farms are engaged in commercial production without providing public benefits it is proposed that they be sold to commercial farming entities. Conversion of these farms to other uses, for example to enable livestock development projects for small or landless farmers, is a matter for social development and poverty alleviation policy.

Assessment of which farms or parts of farms should be retained for continued research or breeding purposes should be determined by a detailed review and cost/benefit analysis of current farm functions and the contribution of these assets to public benefit.

Facilitation and support specifically for commercial livestock producers is only regarded as justified where there is a general public benefit, or where that industry suffers a specific disadvantage with respect to other industries. In the Australian context unusual and prolonged drought and flood have been regarded as specific disadvantages where producers have received subsidies for fodder purchase and transport of livestock to market. Previous drought income support is now regarded as poor policy in that it does not encourage producers to prepare for these events. Specific support programs now focus on capacity-building and training for producers. Otherwise general support for commercial livestock producers is through taxation policy in areas such as:

- Deferral of profit from forced disposal of stock eg due to drought
- Income averaging to offset disadvantage due to extreme income fluctuation
- Deferral of profit through farm management deposit schemes to offset income variability
- Accelerated write-off for specific expenditures such as soil and water conservation.

Unless there is a specific government policy to encourage the livestock industry, other incentives for livestock industry producers or service providers should only be justified against the test of general public benefit. In the case of landless and nomadic grazing practices, it should be

recognized that (as a result of cultural traditions and social disadvantage) the benefits of grazing are provided by the public currently free of any charge.

Policy objectives:

- No government involvement in commercial livestock production or ownership of assets for that purpose.
- Transparent and equitable livestock industry taxation policies including income taxation, cost recovery for services, recognition of cost for grazing public rangeland.

Institutional requirements:

- Review all government farms to remove commercial activities and dispose of assets not contributing to the public good.
- Review agricultural taxation policies

Private sector action:

- Development of effective industry representation mechanisms such as farmer organisations to enable effective consultation and industry advice to government.

9.10 Animal welfare

Policy objectives:

- A code of practice for animal welfare in markets, slaughter, transport, research, and commercial production including nutrition and management, which reflects good commercial livestock practice as well as current attitudes of society.

Institutional requirements:

- L&DD Departments to take the lead in developing the code of practice by consulting with livestock producers, and academic and citizen groups.
- L&DD Departments to establish Animal Welfare units to investigate cases of non-compliance, and include awareness of animal welfare COPs in extension programs.

Private sector actions:

- Market managers, transport operators, processors, research supervisors and livestock farmers to accept responsibility to comply with regulations.
- Citizen groups to assist to identify cases of non-compliance for investigation

9.11 Environment

Policy objectives:

Regulation of negative effects on the environment as a result of livestock management, transport or processing, or disposal of waste associated with these activities, giving particular attention to feedlots and intensive livestock industries.

Institutional requirements:

Government to develop capacity of Provincial Environment Protection Department to set standards and regulate livestock industry downstream effects impacting on the environment.

Private sector actions:

Processors, feedlotters, intensive livestock managers to comply with regulations associated with waste disposal. New feedlots to build in waste disposal plans to meet licensing requirements.

9.12 Rangeland Management

Policy background

A large proportion of Pakistan livestock production is based on public rangelands (65-70% of area), much of which is regarded as a resource held in common. Management of this resource is currently the responsibility of provincial Forest Departments, although the main users are livestock producers. With traditional sustainable (often transhumant) livestock grazing practices overtaken by competition for forage resources, and with other impacts such as drought and climate change, the need has arisen for management of this public asset by specialist agencies.

Policy objectives

- Measurement of impacts of livestock on public rangelands currently managed by Provincial Forestry Departments.

Regulation of livestock management practices which have negative effects on soil, water or vegetation resources on publicly owned and administered rangeland..

Institutional requirements

Provincial governments to develop the capacity to:

- Monitor ecological condition using soil, water and vegetation parameters on grazed publicly-owned rangeland, to determine trends, measure impacts on endangered ecosystems, and identify causal factors,
- Establish principles for charging users with the costs of managing public rangelands.
- Plan for impacts of drought and climate change
- Consult with stakeholders and develop management strategies for improving the condition of public rangelands
- Establish education, awareness and incentive programs aimed at rangeland users.

Private sector actions:

- Livestock producers grazing public rangeland to carry some of the management costs.
- Livestock producers grazing public rangeland to comply with regulations aimed at protecting endangered ecosystems.

- Livestock producers grazing privately-owned rangeland to be the target of education and incentive strategies aimed to protect endangered ecosystems.

10. Structures for Policy Reform

The proposed policy reforms detailed in Section IX will require creation of additional organizational units for effective implementation. In carrying out their functions these units will provide non-political leadership, represent stakeholders, and facilitate consultation, and coordination. The following independent bodies have been proposed:

10.1 Veterinary Medicine Authority

An independent body proposed to undertake livestock medicine and vaccine registration, (with a similar function to the Australian statutory Agricultural Pesticides and Veterinary Medicines Authority.)

10.2 Livestock Research Council

An independent body which would assesses current and completed projects, prioritize and manage funding of future projects, and represent government, funding agencies and industry end-users. It would also establish linkages and consult widely with research bodies, extension providers, and industry funding sources.

10.3 Livestock Market Authority

The authority to be funded from market transaction levies, representing government, producers, processors, agents and all other stakeholders, to manage the transition to market reform.

The authority to be responsible for assisting market management regarding rules of market conduct, and developing capacity of industry associations to undertake self-regulation. The authority to oversee a market information and reporting service which employs specialists to develop standardized livestock descriptions, record prices, summarize data, assess trends, and coordinate information transfer to the media.

10.4 Meat Processing Authority

An independent authority proposed to be responsible for processor licensing, and to develop standards and ensure compliance in all licensed processing plants and slaughterhouses.

10.5 Rangeland Management Authority

The Authority to have the skills and resources to enable the following functions:

- Monitor ecological condition using soil, water and vegetation parameters on grazed publicly-owned rangeland, to determine trends, measure impacts on endangered ecosystems, and identify causal factors,
- Develop principles for charging users with the costs of managing public rangelands.
- Plan for impacts of drought and climate change

- Consult with stakeholders and develop management strategies for improving the condition of public rangelands

In addition to these agencies, the policy proposals also include creation of the following functional units in existing government organizations:

1. An extension coordinating committee drawn from government, NGOs and industry.
2. A feed testing laboratory attached to a livestock industry controlled Forage Research Institute.
3. An animal welfare unit within the L&DD Department.
4. A unit within Environment Protection Department to manage regulation of livestock industry impacts.

Note also the following recommended review actions:

1. Review of vaccine demand, availability and cost issues.
2. Review of current livestock breeding activities to determine:
 - Which indigenous breeds require preservation
 - Actual cost to government of production of semen and cost of insemination services
 - Effectiveness of processes for assessment of genetic status of government semen (progeny tests etc)
 - Actual costs to semen users including informal charges by government staff
 - Level of subsidy by government
 - Availability and cost of commercial insemination services
 - Survey of user characteristics, and analysis of ability of users to pay commercial rates
 - Analysis of constraints to public AI services including semen quality and quantity, availability and training of human resources, geographical limits to service, and awareness/adoption issues for users.
3. Review of all government livestock and poultry farms to assess the cost and value of current research activities, and the cost and value of breeding activities.

11. Policy Frameworks

The framework developed using principles outlined in Section 8 has adapted a chart from a Punjab Livestock and Dairy Development Department presentation to FIRMS Project as a guide in setting out policy areas.

- Disease surveillance and control
- Food safety
- Human resource development
- Extension services
- Feeds, vaccine and semen production
- Curative / insemination services
- Genetic upgradation
- Research and development
- Technology and business development
- Marketing
- Processing-value addition
- Commercial livestock farming

Table 2: Policy Framework for Punjab and Sindh

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
Disease surveillance and control (use of vaccine etc) 1	E	Currently there is no comprehensive policy on animal health. Sporadic legislation on horse diseases exists.	Veterinary Inspectors and District Livestock Officers, who deal with disease control, have limited capacity and resources. They are also hampered in their work by absence of disease control regulations	No formal role assigned to Private sector. Facilitation includes farm visitations and administration of vaccine by Government appointed VAs. Most commercial farms undertake disease surveillance and control themselves.
	I	Livestock surveillance and control is undertaken by a not-for-profit company representing and funded by federal and state governments, and livestock industry stakeholders. It manages disease surveillance, emergency preparedness, animal health and welfare standards, vet. accreditation, and policy development.	Animal Health Australia Ltd is the public company established by the Federal Govt to manage surveillance and control State entities (Livestock Health and Pest Authority) also monitors disease occurrence and regulates at state level.	Private vets provide control services and advice. Private suppliers of vaccines and medicines have formal training and advise farmer clients re occurrence and control.
	P	Government capacity to conduct surveillance programs capable of detecting new exotic diseases, providing evidence of freedom from diseases, describing distribution and level of occurrence of endemic	Develop capacity in L&DD Dept to achieve the policy objectives. Develop capacity in L&DD Dept to undertake strategies which include	Control (vaccination) a private sector responsibility except for strategic programs for specific infectious diseases.

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
		<p>diseases, and assessing progress in control and eradication.</p> <p>Government capacity to provide the technical and financial analysis (feasibilities, risk levels, cost-benefits) to enable decisions and strategies relating to livestock disease.</p> <p>Regulation to provide effective disease monitoring and reporting from private veterinary clinics, livestock markets, and slaughter/processing facilities.</p> <p>Regulation to provide for the establishment of disease control and eradication areas for particular transmissible diseases.</p>	<p>quarantine, movement restrictions, mass vaccination, epidemiological research, and education targeted at private sector control.</p> <p>Develop capacity in L&DD Dept to mandate disease monitoring and data collection at markets, abattoirs, and private veterinary clinics</p> <p>A Federal agency to monitor and manage cross-border disease issues.</p>	
Disease treatment 2	E	Currently Livestock and human medicine registration regimes are the same. (The Drugs Act,1976, provides for registration of drugs and the manufacturers by federal entities, while the sale of these drugs by the Provincial Governments) Professional registration framework is provided by the Pakistan Veterinary Medical Council, which is a federal body established under the Pakistan Veterinary Medical Council Act, 1996	Government Vet Hospitals provide some level of treatment.	LDD is working to privatize curative services
	I	<p>Treatment is regulated through a labelling process which lays out correct use of medicines, preventing harm to treated animals, or harm to humans as a result of consumption of treated animals.</p> <p>Specific livestock medicines such as antibiotics must be administered by vets who must be accredited by Animal Health Australia.</p> <p>All medicines must be registered for use to treat animals under specified conditions and dose rates, which are detailed on the label, including withholding periods etc</p>	<p>Aust. Pesticides and Veterinary Medicines Authority sets standards of use (and requires these standards on the label)</p> <p>Compliance with labelling standards is the responsibility of the NSW Dept of Primary Industries.</p>	<p>All medicines are available through private sector distribution.</p> <p>Treatment can be by private vets for specified medicines, or by producers and contractors for all other medicines.</p> <p>Private suppliers and retailers of vaccines and medicines advise producers re treatment methods.</p>
	P	Disease treatment to be a private sector activity undertaken by private sector veterinarians or others (paravets, community livestock health workers, livestock owners),	A federal authority currently undertakes veterinary medicine registration. This body is proposed to evaluate	Disease treatment at private veterinary clinics in accordance with labels attached to medicines.

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
		<p>using registered and labelled medicines.</p> <p>Only veterinary medicines to be available to the private sector which are accredited and labelled for use under specific conditions</p>	<p>issues such as toxicology, and specify labelling attached to medicines before distribution. Labels will ensure that users are aware of conditions of safe use for humans, targeted animals, and the environment. Labels will specify how the medicine is to be administered, stored and disposed, and with-holding periods after treatment before consumption.</p> <p>LD&D Department to be responsible for education of medicine users regarding the use of medicines in accordance with labels</p>	<p>Disease treatment by producers in accordance with labels attached to medicines</p> <p>.</p>
Vaccine production 3	E	<p>The Public sector produces vaccines identified as being necessary for the livestock industry.</p> <p>Vaccine and diagnostic agents(18 different products) are produced by two government entities- the Veterinary Research Institute and Foot and Mouth Disease Center</p>	<p>Both institutes have extensive management/HR/ quality problems and need reform</p>	<p>LDD intends to involve private sector parties in vaccine production at Government facilities</p>
	I	<p>Veterinary medicines and vaccines must meet defined standards of quality regulated by an independent body (Agricultural Pesticides and .Veterinary Medicines Authority)</p> <p>Australian Quarantine and Inspection Service regulates import of vaccines.</p>	<p>Australia production must meet Agricultural Pesticides and Vet. Medicines Authority approval, and Australian Code of Good Manufacturing Practice</p> <p>.</p>	<p>The private sector in the form of a range of multi-national and smaller private producers meet mass market and specific vaccine requirements</p>
	P	<p>Vaccine production or importation to be limited to the private sector</p> <p>All vaccines to be registered for use, or approved for importation by an independent authority</p>	<p>An authority to undertake registration through a process of assessment and approval. This body to evaluate conditions and standards of vaccine production, and issue import permits before vaccines may be imported.</p> <p>This body to have the capacity to ensure standards of manufacturing practice, or quality assurance of imported product in</p>	<p>Commercial importation of approved vaccines.</p> <p>Development of commercial manufacturing facilities to acceptable standards, possibly using foreign direct investment.</p>

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
			respect to contamination with exotic pathogens. LD&D Department to be responsible for assessing vaccine needs, for undertaking risk analysis and cost-benefit analysis regarding vaccination strategies, and for delivering educational and awareness campaigns	
Feed production and monitoring 4	E	There is a legal regime to regulate feed production - the Punjab Animals Compound feed and Feed Stuff Ordinance, 2002		None
	I	State policy requires analysis and identification of feed ingredients and labelling of manufactured animal feeds. For non-manufactured feeds such as grain or hay, policy requirement is vendor declaration with regard to chemical residues and fungal toxins.	Meat and Livestock Australia Ltd is the industry-funded company which oversees compliance .	Feed nutritional quality "Feedtest" services are licensed to private sector (previously developed by Govt agencies).
	P	Quality assurance through the food chain by a traceability process for non-manufactured feeds. through a vendor declaration procedure. Development of business practices supporting trade in non-manufactured feeds/forage as a commodity, based on availability of objective quality analysis, underpinned by a quality assurance process	Government capacity in L&DD Departments to administer the declaration process, which ensures that feed purchased by a livestock producer is free of potentially dangerous chemical residues, and that a producer can request the relevant declaration from their supplier of livestock fodder. A government feed testing laboratory which can develop standards and protocols	Producers, feedlotter, dairy farmers and feed suppliers to adopt declaration procedures to identify responsibility and ensure traceback for residues. Commercial entities take over feed testing services as soon as systems, protocols and commercial viability are established
Extension services 5	E	There is no comprehensive policy regarding access, quality and effectiveness of various services.	Directorate of extension services provides extension services in the districts through District Livestock officers. Extension services are limited both in terms of accessibility and Quality.	Private sector involvement in extension services is absent except through limited advertisement activity of producers of animal feed and drugs

Core areas of livestock sector	Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
	I Agriculture and livestock issues are not included in the Federal Constitution and are delegated to the states. State government policy is to provide farmer support and education.	State Governments delivers extension through a mix of methods including fee for service, and outsourcing to private sector providers.	Private sector extension and training providers compete to offer specific products (as changing policy directs more funds to private sector).
	P Government institutions provided with capacity to deliver programs for the public good including technology transfer, education, attitude change, human resource development, and dissemination and collection of information. Development of mechanisms to enable contributions to funding of extension from industry, associated with input regarding extension needs. Private sector entities including consultants/agribusiness to be registered and facilitated to provide extension services where appropriate Government institutions provided with technical capacity to manage private sector extension providers. Social development and poverty alleviation activities to be defined, and managed independently of L&DD Departments.	Departments responsible for extension (L&DD) to be given the capacity and staff to deliver programs and assess private extension providers for registration. . Tertiary training in appropriate disciplines needed for extension service personnel. An extension private-public coordination committee to be convened by L&DD Dept to allow consultation and coordination between government institutions, NGOs and industry.	Private extension providers to develop capacity and appropriately-trained staff to meet registration requirements. Private sector to develop skills to provide facilitation of producer group formation and collective enterprise development, disease management, marketing
Breed improvement (includes insemination services and semen production) 6	E There are currently no standards established by law regarding semen production and use. LDD has suggested an animal breeding law to regulate breed improvement.	LDD maintains a limited number of centres for provision of quality semen and maintaining pure breed animals). Centres lack resources and capacity.	No restriction on import of semen or live animals.
	I State policy regulates semen production conditions and use in AI programs. Semen and embryo importation is regulated at national level.	Regulation by State Department of Primary Industry and Federal Australian Quarantine and Inspection Service.	No restrictions on investment and free competition by private producers and suppliers of breeding stock, semen and embryos. Breed genetic progress is monitored through the Australian Dairy Herd Improvement Scheme (ADHIS) a private

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
				company which receives government funding and technical support.
	P	<p>Preservation of indigenous breeds to ensure supply of indigenous semen and breeding stock.</p> <p>Facilitation and regulation of private semen production and insemination, to ensure standards of business practice, and fair treatment for consumers in regard to standards of semen quality and insemination, including disease transmission.</p> <p>Regulation of importation of semen aimed at limiting the risk of disease transmission.</p> <p>Facilitation and regulation of a viable breeding industry which meets the needs of expanding milk and meat production industries, with no restriction in private investment and trading in livestock genetics</p>	<p>Review of public sector breed preservation, semen production and artificial insemination programs.</p> <p>Maintenance of indigenous herds and flocks of specific breeds depending on review.</p> <p>Maintenance of AI services, depending on review.</p> <p>Technical assistance to breed societies.</p>	<p>Commercial stud industry development supplying semen and breeding stock.</p> <p>Establish breed societies and industry organisations to monitor and measure breed quality and genetic progress.</p>
Research and Development 7	E	<p>There is no research policy in the public sector. Research in the public sector is facilitated by Punjab Livestock, Dairy and Poultry Development Board Act, which is statutory established by the Punjab Livestock, Dairy and Poultry Development Board Act, 1974 (The Board is nonexistent for last many years, though the Act exists.)</p> <p>The University of Veterinary & Animal Sciences, Act 2002 enjoins the University to conduct research.</p>	<p>The Directorate General of Research is responsible for research. The directorate lacks capacity and research is generally weak except with regard to on-Farm management practices. Some research also takes place UVAS, Lahore</p>	
	I	<p>Policy is based on the requirement for rural industries to help pay for research through levies, and research organisations compete for these funds.</p>	<p>Research policy is prioritized by the Rural Research and Development Council, and research funding at Federal and State level is managed by a series of R&D Corporations which are joint producer/government funded.</p>	<p>Cooperative Research Centre programs aim to create partnerships between private and public sector.</p> <p>Private agencies or farmer groups also contract to undertake research.</p>
	P	<p>Prioritization of research including formal engagement with each end-user industry</p>	<p>Research governance to be coordinated by an independent body which assesses current and</p>	<p>Research bodies and private enterprise to compete for matching</p>

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
		<p>Funding contributions by end-user industries</p> <p>Accountability by researchers to funding bodies</p> <p>Monitoring, evaluation, and impact assessment by end-users, and measurement of adoption rates of research results</p>	<p>completed projects and prioritizes and manages funding of future projects, the independent body to represent government, funding agencies and industry end-users</p> <p>Establishment of linkages between research bodies and public sector extension entities</p> <p>All L&DD Department farm research activities to be reviewed regarding cost-benefits, impact assessment by end-users.</p> <p>Fodder Research Institute to be transferred to L&DD Department control, with research reviewed using the same criteria</p>	<p>grants to undertake projects.</p> <p>Linkages between research bodies and private sector extension entities</p>
Livestock marketing 8	E	Marketing is inadequately regulated in the province. There are no legal standards regarding quality assurance of live animals. There are restrictions on establishing cattle markets/undertaking sale and purchase of animals in the Local Government Ordinance, 2001, Punjab Agricultural Produce Markets Ordinance 1978. There are restrictive laws on slaughter of certain types of animals		The Export policy and procedures Order 2000 does not impose any restrictions or prescribe any requirements for the export of livestock produce/products.
	I	<p>The aim of livestock market policy is to ensure free competition with transparency of information and fair business practice.</p> <p>Markets are regulated under a Code of Practice which includes business practices, identification, monitoring and recording of livestock data, levy collection etc</p> <p>Compulsory levies are imposed on all livestock transactions (under the Primary Industries Levies and Charges Collection Act 1991, and Australian Meat and Livestock Industry Act 1997) which are used for market development, quality assurance, and identification.</p>	<p>Self-regulation under the Code of Practice is implementation by Associations of Agents</p> <p>All formal livestock transactions involve a levy which funds Meat and Livestock Australia (MLA) a body which provides market information, animal identification and traceback, product QA, and market development</p>	Livestock markets normally are privately owned and managed.
	P	Livestock markets to be conducted by the private sector, with commercial entities competing to offer market services.	Local government to regulate impacts associated with environment, traffic, and urban development	Commercial entities to invest in land and infrastructure, meet licensing requirements, and manage markets

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
		<p>Market management entities to be regulated to ensure compliance with provincial conditions including standards of market conduct, collection of data and collection of levies to fund market development</p>	<p>Provincial governments to be responsible for licensing of market management entities, and regulating standardized market rules, collection of levies, and market data collection.</p> <p>Provincial government to establish a market information service within L&DD Dept.</p> <p>Provincial government to regulate market livestock disease monitoring and quarantine and movement restriction when required</p> <p>Provincial government to establish an authority funded from market transaction levies, representing government, producers, processors, agents and all other stakeholders, to manage the transition to market reform.</p> <p>The authority to be responsible for advising market management regarding rules of market conduct, and developing capacity of industry associations to undertake self-regulation. Authority to oversee a market information and reporting service which employs specialists to develop standardized livestock descriptions, record prices, summarize data, assess trends, and coordinate information transfer to the media..</p>	<p>according to rules of market conduct.</p> <p>Formation of organisations representing market stakeholders, which can consult with governments regarding market rules of conduct, and ultimately manage self-regulation processes.</p>
	Meat Processing, Value addition 9	E	<p>Product safety is regulated by the newly promulgated Food Safety and Standards Ordinance, (This Ordinance has been recently replaced by the Punjab food safety Authority Act,2011 which, apparently, does not apply to raw meat.).</p>	<p>Meat inspectors appointed by Local Governments certify meat quality at slaughterhouses. Milk standards areenforced by Pure Food inspectors</p>

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
	I	Policy is for an independent national body which represents producers and processors to develop domestic standards and ensure compliance. This body responsible for processor accreditation.	Independent body Aus-Meat Ltd is funded by producer levies and processor donations. AQIS ensures compliance with export standards at cost to exporters.	All producers and processors have a stake in product quality assurance.
	P	Private sector freedom to undertake slaughter of livestock and processing activities to produce meat products for domestic or export use. Business entities to be licensed to undertake domestic processing, with accreditation based on issues such as standards of infrastructure, standards of operational hygiene, standards of environmental care etc. Removal of meat price controls in domestic markets.	An independent authority to be responsible for processor licensing, and to develop standards and ensure compliance in all licensed processing plants. The independent body to also contract out its services, for example to exporters	Private sector processors to fund the independent licensing authority
Commercial livestock production	E	The LDD own 22 livestock and 9 poultry farms for research and breed maintenance purposes.		There is no regulation of farms in the private sector
14	I	Policy precludes government ownership of assets unless for the public good, so no influence or participation in commercial production activities and no government ownership of farms except for research purposes. Policy supports establishment of strong farmer organisations to enable clear recommendations to government from the private sector.	Farmer organizations at State level are represented at Federal level in commodity councils (eg sheepmeat council)	Policy for special assistance to farmers includes taxation benefits.
	P	No government involvement in commercial livestock production or ownership of assets for that purpose. Transparent and equitable livestock industry taxation policies including income taxation, cost recovery for services, recognition of cost for grazing public rangeland	Review all government farms to remove commercial activities and dispose of assets not contributing to the public good. Review agricultural taxation policies.	Development of effective industry representation mechanisms such as farmer organisations to enable consultation and industry advice to government.

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
Animal welfare 11	E	There is a legal regime, which prohibits cruelty on animals – the Prevention of Cruelty to Animals Act, 1890. However the law does not deal with issues of neglect comprehensively.	Enforcement capacity is extremely weak with less than 50 inspectors dealing entrusted with enforcement throughout the province.	
	I	Policy reflects strong community response to industrial farming concepts, with emphasis on standards for housing, transport, slaughter etc (NSW Prevention of Cruelty to Animals Act 1979. NSW Prevention of Cruelty to Animals Regulation 2006. NSW Animal Research Act 1985).	Policy ensures compliance or prosecution by RSPCA for a range of issues including starvation of grazing animals, transport breaches . Use of animals in research is also regulated.	Industry response is included in Agents' Saleyard Code of Practice, and Livestock Transporters Code of Practice.
	P	A code of practice for animal welfare in markets, slaughter, transport, research, and commercial production including nutrition and management, which reflects good commercial livestock practice as well as current attitudes of society	L&DD Departments to take the lead in developing the regulations in the Code of Practice by consulting with livestock producers, and academic and citizen groups. L&DD Departments to establish Animal Welfare units to investigate cases of non-compliance, and include awareness of animal welfare COPs in extension programs	Market managers, transport operators, processors, research supervisors and livestock farmers to accept responsibility to comply with regulations. Citizen groups to assist to identify cases of non-compliance for investigation
Environment 12	E	Standards have been legally established to control contamination of soil, water and air. The environmental protection law - the Pakistan Environment Protection Act, 1997 –is a federal law.	The Provincial EPD has inadequate capacity. Enforcement is weak and generally targeted on industries	
	I	.Intensive livestock production activities such as feedlotting and processing are subject to regulation to prevent air, soil and water impacts.	Environmental Protection Agency develops standards and ensures compliance	Planned private developments need EPA approval.
	P	Regulation of negative effects on the environment as a result of livestock management, transport or processing, or disposal of waste associated with these activities, giving particular attention to feedlots and intensive livestock industries	Appropriate body to be identified and given capacity to monitor resources.	Penalties for private polluters
Rangeland 13	E	No regulation of grazing on public land	Forestry Dept controls management of forest and rangeland areas.	Livestock owners do not pay for the right to graze rangeland.

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
	I	<p>Policy is based on meeting environmental targets for private and public land (particularly rangeland) based on trends in defined environmental indicators for threatened ecosystems</p> <p>Grazed public lands are regulated and monitored.;On private lands incentives are used to limit grazing.</p>	<p>Department of Environment and Water regulates impacts through locally-,managed Catchment Management Authorities</p>	<p>Private lessees lease Government-owned rangeland under management conditions, private landowners are educated regarding grazing management</p>
	P	<p>Regulation of negative effects on soil, water or vegetation resources on publicly owned and administered land as a result of livestock management practices such as overgrazing.</p> <p>Limitation of negative effects on soil, water or vegetation resources on privately-owned land as a result of livestock management practices such as overgrazing, through public education, awareness and incentive programs</p>	<p>Provincial governments to establish an authority to monitor ecological condition using soil, water and vegetation parameters on grazed publicly-owned rangeland, to determine trends, measure impacts on endangered ecosystems, and identify causal factors,</p> <p>Authority to develop principles for charging users with the costs of managing public rangelands., plan for impacts of drought and climate change, consult with stakeholders and develop management strategies for improving the condition of public rangelands</p> <p>Authority to develop education, awareness and incentive programs aimed at private sector rangeland managers.</p>	<p>Livestock producers grazing public rangeland to carry some of the management costs.</p> <p>Livestock producers grazing public rangeland to comply with regulations aimed at protecting endangered ecosystems.</p> <p>Livestock producers grazing privately-owned rangeland to be the target of education and incentive strategies aimed to protect endangered ecosystems</p>

Table 3: Policy Framework for Balochistan

Core areas of livestock sector		Policy, legal and regulatory framework A	Institutional B	Private sector support/ Facilitation C
Disease surveillance and control (use of vaccine etc) 1	E	Disease surveillance and control (use of vaccine etc) is being carried out throughout the province. Different kinds of vaccines of sheep, goat, cattle are done through Deputy Director Animal Health of the all districts through his Staff during the vaccination season	Animal Health Sector of the Livestock Department Balochistan	
	I	Livestock surveillance and control is undertaken by a not-for-profit company representing and funded by federal and state governments, and livestock industry stakeholders. It manages disease surveillance, emergency preparedness, animal health and welfare standards, vet. accreditation, policy development, and coordinates state regulatory activity..	Animal Health Australia Ltd is the public company established by the Federal Govt to monitor and coordinate disease issues. The Livestock Health and Pest Authority is the state entity which monitors disease occurrence and regulates at the state level.	Private vets provide control services and advice. Private suppliers of vaccines and medicines have formal training and advise farmer clients re occurrence and control.
	P	Government capacity to conduct surveillance programs capable of detecting new exotic diseases, providing evidence of freedom from diseases, describing distribution and level of occurrence of endemic diseases, and assessing progress in control and eradication. Government capacity to provide the technical and financial analysis (feasibilities, risk levels, cost-benefits) to enable decisions and strategies relating to livestock disease. Regulation to provide effective disease monitoring and reporting from private veterinary clinics, livestock markets, and slaughter/processing facilities. Regulation to provide for the establishment of disease control and eradication areas for particular transmissible diseases.	Develop capacity in L&DD Dept to achieve the policy objectives. Develop capacity in L&DD Dept to undertake strategies which include quarantine, movement restrictions, mass vaccination, epidemiological research, and education targeted at private sector control. Develop capacity in L&DD Dept to mandate disease monitoring and data collection at markets, abattoirs, and private veterinary clinics A Federal agency to monitor and manage cross-border disease issues ta collection at markets and slaughterhouses.	Control (vaccination) a private sector responsibility except for strategic programs for specific infectious diseases.
Disease treatment 2	E	The various ailments are being treated through medication like antibiotics, anthelmintics, supplements, supportive medicines throughout the province.	Treatment by Civil Veterinary Hospital, Civil Veterinary Dispensaries and Mobile Veterinary Camps.	

	I	<p>Treatment is regulated through a labelling process which lays out correct use of medicines, preventing harm to treated animals, or harm to humans as a result of consumption of treated animals. Specific livestock medicines such as antibiotics must be administered by vets who must be accredited by Animal Health Australia.</p> <p>All medicines must be registered for use to treat animals under specified conditions and dose rates, which are detailed on the label, including with-holding periods etc</p>	<p>Aust. Pesticides and Veterinary Medicines Authority sets standards of use (and requires these standards on the label)</p> <p>Compliance with labelling standards is the responsibility of the NSW Dept of Primary Industries.</p>	<p>All medicines are available through private sector distribution.</p> <p>Treatment can be by private vets for specified medicines, or by producers and contractors for all other medicines.</p> <p>Private suppliers and retailers of vaccines and medicines advise producers re treatment methods.</p>
	P	<p>Disease treatment to be a private sector activity undertaken by private sector veterinarians or others (paravets, community livestock health workers, livestock owners), using registered and labelled medicines.</p> <p>Only veterinary medicines to be available to the private sector which are accredited and labelled for use under specific conditions</p>	<p>A federal authority currently undertakes veterinary medicine registration. This body is proposed to evaluate issues such as toxicology, and specify labelling attached to medicines before distribution. Labels will ensure that users are aware of conditions of safe use for humans, targeted animals, and the environment. Labels will specify how the medicine is to be administered, stored and disposed, and with-holding periods after treatment before consumption.</p> <p>LD&D Department to be responsible for education of medicine users regarding the use of medicines in accordance with labels</p>	<p>Disease treatment at private veterinary clinics in accordance with labels attached to medicines. Disease treatment by producers in accordance with labels attached to medicines .</p>
Vaccine production 3	E	The Department is not producing Vaccines. However the vaccines is procured as per requirement		
	I	Veterinary medicines and vaccines must meet defined standards of quality regulated by an independent body (Agricultural Pesticides and .Veterinary Medicines Authority)	Australia production must meet Agricultural Pesticides and Vet. Medicines Authority approval, and Australian	The private sector in the form of a range of multi-national and smaller private producers meet mass market and

		Australian Quarantine and Inspection Service regulates import of vaccines.	Code of Good Manufacturing Practice	specific vaccine requirements
	P	Vaccine production or importation to be limited to the private sector All vaccines to be registered for use, or approved for importation by an independent authority	An authority to undertake registration through a process of assessment and approval. This body to evaluate conditions and standards of vaccine production, and issue import permits before vaccines may be imported. This body to have the capacity to ensure standards of manufacturing practice, or quality assurance of imported product in respect to contamination with exotic pathogens. LD&D Department to be responsible for assessing vaccine needs, for undertaking risk analysis and cost-benefit analysis regarding vaccination strategies, and for delivering educational and awareness campaigns	Commercial importation of approved vaccines. Development of commercial manufacturing facilities to acceptable standards, possibly using foreign direct investment.
Feed production and monitoring 4	E	Feed for the animals of Livestock Farms is procured from the market.		None
	I	State policy requires analysis and identification of feed ingredients and labelling of manufactured animal feeds. For non-manufactured feeds such as grain or hay, policy requirement is vendor declaration with regard to chemical residues and fungal toxins.	Meat and Livestock Australia Ltd is the industry-funded company which oversees compliance.	Feed nutritional quality "Feedtest" services are licensed to private sector (previously developed by Govt agencies).
	P	Quality assurance through the food chain by a traceability process for non-manufactured feeds. Through a vendor declaration procedure. Development of business practices supporting trade in non-manufactured feeds/forage as a commodity, based on availability of objective quality analysis, underpinned by a quality assurance process	Government capacity in L&DD Departments to administer the declaration process, which ensures that feed purchased by a livestock producer is free of potentially dangerous chemical residues, and that a producer can request the relevant declaration from their supplier of livestock fodder.	Producers, feedlotter, dairy farmers and feed suppliers to adopt declaration procedures to identify responsibility and ensure traceback for residues. Commercial entities take over feed testing services as soon as systems, protocols and commercial viability are established

			A government feed testing laboratory which can develop standards and protocols	
Extension services 5	E	Animal Health Services are extended to the livestock farmers for their animals throughout the province through district setup of Livestock & Dairy Development by its various establishment including Civil Veterinary Hospitals and Civil Veterinary Dispensaries, etc	.	
	I	Agriculture and livestock issues are not included in the Federal Constitution and are delegated to the states. State government policy is to provide farmer support and education.	State governments delivers extension through a mix of methods including fee for service, and out-sourcing to private sector providers.	Private sector extension and training providers compete to offer specific products (as changing policy directs more funds to private sector).
	P	Government institutions provided with capacity to deliver programs for the public good including technology transfer, education, attitude change, human resource development, and dissemination and collection of information. Development of mechanisms to enable contributions to funding of extension from industry, associated with input regarding extension needs. Private sector entities including consultants/agribusiness to be registered and facilitated to provide extension services where appropriate Government institutions provided with technical capacity to manage private sector extension providers. Social development and poverty alleviation activities to be defined, and managed independently of L&DD Departments	Departments responsible for extension (L&DD) to be given the capacity and staff to deliver programs and assess private extension providers for registration. . Tertiary training in appropriate disciplines needed for extension service personnel. An extension private-public coordination committee to be convened by L&DD Dept to allow consultation and coordination between government institutions, NGOs and industry. .	Private extension providers to develop capacity and appropriately-trained staff to meet registration requirements. Private sector to develop skills to provide facilitation of producer group formation and collective enterprise development, disease management, marketing
Breed improvement (includes insemination services and semen production) 6	E	Animal Breeding and Artificial Insemination services are being carried out throughout the province. The Domestic Breeds of Livestock are being inseminated with the semen of Holstein Friesian for cross breeding for producing high milk yielding animals..	Semen is being produced at Semen Production unit Quetta and this semen is then provided to all districts for AI purposes.	.

	I	State policy regulates semen production conditions and use in AI programs. Semen and embryo importation is regulated at national level..	Regulation by State Department of Primary Industry and Federal Australian Quarantine and Inspection Service..	No restrictions on investment and free competition by private producers and suppliers of breeding stock, semen and embryos. Breed genetic progress is monitored through the Australian Dairy Herd Improvement Scheme (ADHIS) a private company which receives government funding and technical support.
	P	<p>Preservation of indigenous breeds to ensure supply of indigenous semen and breeding stock.</p> <p>Facilitation and regulation of private semen production and insemination, to ensure standards of business practice, and fair treatment for consumers in regard to standards of semen quality and insemination, including disease transmission.</p> <p>Regulation of importation of semen aimed at limiting the risk of disease transmission.</p> <p>Facilitation and regulation of a viable breeding industry which meets the needs of expanding milk and meat production industries, with no restriction in private investment and trading in livestock genetics</p>	<p>Review of public sector breed preservation, semen production and artificial insemination programs.</p> <p>Maintenance of indigenous herds and flocks of specific breeds depending on review.</p> <p>Maintenance of AI services depending on review.</p> <p>Technical assistance to breed societies.</p>	<p>Commercial stud industry development supplying semen and breeding stock.</p> <p>Establish breed societies and industry organisations to monitor and measure breed quality and genetic progress.</p>
Research and Development 7	E	Directorate of Research is working over various research aspects of livestock. The characteristics of the animals are being studied at farm level and the results are then considered for development purposes.	The various setups are working under Directorate of Research, including Beef Production Research Centre Sibi, Karakul Sheep Breeding Farm, Maslakh, Multipurpose Sheep Research Station Yetabad, Wool Research Laboratory Mastung.	
	I	Policy principle is that rural industries must help pay for research through levies, and research organisations compete for these funds.	Research policy is prioritized by the Rural Research and Development Council, and research funding at Federal and State level is managed by a series of R&D Corporations. which are joint producer/government funded.	<p>Cooperative Research Centre programs aim to create partnerships between private and public sector.</p> <p>Private agencies or farmer groups also contract to undertake research.</p>

	P	<p>Prioritization of research including formal engagement with each end-user industry</p> <p>Funding contributions by end-user industries</p> <p>Accountability by researchers to funding bodies</p> <p>Monitoring, evaluation, and impact assessment by end-users, and measurement of adoption rates of research results</p>	<p>Research governance to be coordinated by an independent body which assesses current and completed projects and prioritizes and manages funding of future projects, the independent body to represent government, funding agencies and industry end-users</p> <p>Establishment of linkages between research bodies and public sector extension entities</p> <p>All L&DD Department farm research activities to be reviewed regarding cost-benefits, impact assessment by end-users.</p> <p>Fodder Research Institute to be transferred to L&DD Department control, with research reviewed using the same criteria</p>	<p>Research bodies and private enterprise to compete for matching grants to undertake projects.</p> <p>Linkages between research bodies and private sector extension entities</p>
Livestock marketing 8	E	Livestock Marketing is under the control of Local Government		
	I	<p>The aim of livestock market policy is to ensure free competition with transparency of information and fair business practice.</p> <p>Livestock quality assurance, identification and traceability are regulated by the Primary Industries Levies and Charges Collection Act 1991, and Australian Meat and Livestock Industry Act 1997</p>	<p>Implementation of market policy is through Codes of Practice administered by Associations of Agents</p> <p>All formal livestock transactions involve a levy which funds Meat and Livestock Australia (MLA) a body which provides market information, animal identification and traceback, product QA, and market development</p>	Livestock markets normally are privately owned and managed.
	P	<p>Livestock markets to be conducted by the private sector, with commercial entities competing to offer market services.</p> <p>Market management entities to be regulated to ensure compliance with provincial conditions including standards of market conduct, collection of data and</p>	<p>Local government to regulate impacts associated with environment, traffic, and urban development</p> <p>Provincial governments to be responsible for licensing of</p>	Commercial entities to invest in land and infrastructure, meet licensing requirements, and manage markets according to rules of market conduct.

		collection of levies to fund market development	<p>market management entities, and regulating standardized market rules, collection of levies, and market data collection.</p> <p>Provincial government to establish a market information service within L&DD Dept.</p> <p>Provincial government to regulate market livestock disease monitoring and quarantine and movement restriction when required</p> <p>Provincial government to establish an authority funded from market transaction levies, representing government, producers, processors, agents and all other stakeholders, to manage the transition to market reform.</p> <p>The authority to be responsible for advising market management regarding rules of market conduct, and developing capacity of industry associations to undertake self-regulation.</p> <p>Authority to oversee a market information and reporting service which employs specialists to develop standardized livestock descriptions, record prices, summarize data, assess trends, and coordinate information transfer to the media.</p>	Formation of organisations representing market stakeholders, which can consult with Provincial governments regarding market rules of conduct, and ultimately manage self-regulation processes.
Meat Processing, Value addition	E	No unit is so far established in the province.		
9	I	Policy is for an independent national body which represents producers and processors to develop domestic standards and ensure compliance. This body responsible for processor accreditation.	<p>Independent body Aus-Meat Ltd is funded by producer levies and processor donations.</p> <p>AQIS ensures compliance with export standards at cost to exporters.</p>	All producers and processors have a stake in product quality assurance.
	P	Private sector freedom to undertake slaughter of livestock and processing activities to produce meat products for domestic or export use.	An independent authority to be responsible for processor licensing, and to develop standards	Private sector processors to fund the independent licensing authority

		<p>Business entities to be licensed to undertake domestic processing, with accreditation based on issues such as standards of infrastructure, standards of operational hygiene, standards of environmental care etc.</p> <p>Removal of meat price controls in domestic markets.</p>	<p>and ensure compliance in all licensed processing plants.</p> <p>The independent body to also contract out its services, for example to exporters</p>	
Commercial livestock production 14	E	There are 12 dairy farms and 17 poultry farms operated by the government.	Directorate of Farms and Feed Resources.	Commercial (Private) Livestock Farmer is producing Milk, meat, Eggs, Poultry (Broiler) through Private Dairy Farms, Poultry Farms and Sheep and goat raising
	I	<p>Policy precludes government ownership of assets unless for the public good, so no influence or participation in commercial production activities and no government ownership of farms except for research purposes.</p> <p>Policy supports establishment of strong farmer organisations to enable clear recommendations to government from the private sector.</p>	Farmer organizations at State level are represented at Federal level in commodity councils (eg sheepmeat council)	Policy for special assistance to farmers includes taxation benefits.
	P	<p>No government involvement in commercial livestock production or ownership of assets for that purpose.</p> <p>Transparent and equitable livestock industry taxation policies including income taxation, cost recovery for services, recognition of cost for grazing public rangeland</p>	<p>Review all government farms to remove commercial activities and dispose of assets not contributing to the public good.</p> <p>Review agricultural taxation policies.</p>	Development of effective industry representation mechanisms such as farmer organisations to enable consultation and industry advice to government.
Animal welfare 11	E	Animal welfare is being undertaken through Animal Health Services and consultancies at various level by the Livestock Department throughout the province by the veterinary professionals	.	
	I	<p>Policy reflects strong community response to industrial farming concepts, with emphasis on standards for housing, transport, slaughter etc</p> <p>(NSW Prevention of Cruelty to Animals Act 1979. NSW Prevention of Cruelty to Animals Regulation 2006. NSW Animal Research Act 1985).</p>	<p>Policy ensures compliance or prosecution by RSPCA for a range of issues including starvation of grazing animals, transport breaches.</p> <p>Use of animals in research is also regulated.</p>	Industry response is included in Agents' Saleyard Code of Practice, and Livestock Transporters Code of Practice.
	P	A code of practice for animal welfare in markets, slaughter, transport, research, and commercial production including nutrition and	L&DD Departments to take the lead in developing the regulations in the	Market managers, transport operators, processors, research

		management, which reflects good commercial livestock practice as well as current attitudes of society	Code of Practice by consulting with livestock producers, and academic and citizen groups. L&DD Departments to establish Animal Welfare units to investigate cases of non-compliance, and include awareness of animal welfare COPs in extension programs	supervisors and livestock farmers to accept responsibility to comply with regulations. Citizen groups to assist to identify cases of non-compliance for investigation
Environment 12	E	The environment is not distressed by the livestock activities as the Government Livestock Farms and other setup is well confined.	The commercial dairy and poultry farms either working outskirts of the cities and is being managed/controlled by the District Government/Municipal Department Balochistan.	
	I	.Intensive livestock production activities such as feedlotting and processing are subject to regulation to prevent air, soil and water impacts.	Environmental Protection Agency develops standards and ensures compliance	Planned private developments need EPA approval.
	P	Regulation of negative effects on the environment as a result of livestock management, transport or processing, or disposal of waste associated with these activities, giving particular attention to feedlots and intensive livestock industries	Appropriate body to be identified and given capacity to monitor resources.	Penalties for private polluters
Rangeland 13	E	No regulation of grazing on public land	Forestry Dept controls management of forest and rangeland areas.	.
	I	Policy is based on meeting environmental targets for private and public land (particularly rangeland) based on trends in defined environmental indicators for threatened ecosystems Grazed public lands are regulated and monitored.;On private lands incentives are used to limit grazing.	Department of Environment and Water regulates impacts through locally-managed Catchment Management Authorities	Private lessees lease Government-owned rangeland under management conditions, private landowners are educated regarding grazing management
	P	Regulation of negative effects on soil, water or vegetation resources on publicly owned and administered land as a result of livestock management practices such as overgrazing. Limitation of negative effects on soil, water or vegetation resources on privately-owned land as a result of livestock management practices such as overgrazing, through public education, awareness and incentive programs	Provincial governments to establish an authority to monitor ecological condition using soil, water and vegetation parameters on grazed publicly-owned rangeland, to determine trends, measure impacts on endangered ecosystems, and identify causal factors, Authority to develop principles for charging	Livestock producers grazing public rangeland to carry some of the management costs. Livestock producers grazing public rangeland to comply with regulations aimed at protecting endangered ecosystems.

			<p>users with the costs of managing public rangelands., plan for impacts of drought and climate change, consult with stakeholders and develop management strategies for improving the condition of public rangelands</p> <p>Authority to develop education, awareness and incentive programs aimed at private sector rangeland managers.</p>	<p>Livestock producers grazing privately-owned rangeland to be the target of education and incentive strategies aimed to protect endangered ecosystems</p>
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